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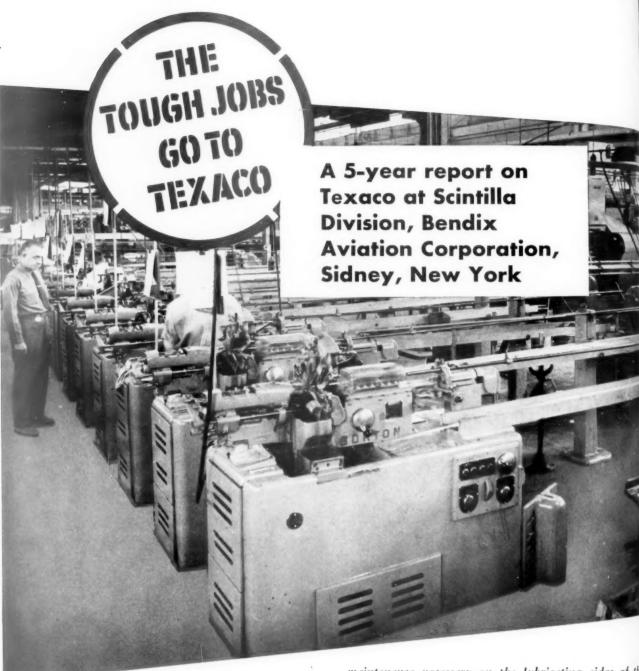
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New York

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DEVICES

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IN 1950, a few months after Texaco Cleartex Oil went into use on this battery of automatics, the following benefits were noted: (1) drills lasted twice as long; (2) uniform hole size was maintained; (3) staining of copper was eliminated; and (4) lubrication expense was reduced.

TODAY: "These benefits are still continuing. Texaco... has solved many of our cutting problems... no

maintenance necessary on the lubricating sides of the machines."

So with the tough jobs everywhere in industry. When Texaco Lubricants and Lubrication Engineering Service step in, production steps up and unit costs step down. Put this proven combination to work in *your* business.

Just call the nearest of the more than 2,000 Texaco Diversibilities Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, New York.



# **TEXACO** Lubricants, Fuels and Lubrication Engineering Service

TUNE IN . . . TEXACO STAR THEATER starring DONALD O'CONNOR or JIMMY DURANTE on television...Saturday nights, NBC

# PURCHASING

The National Magazine of Industrial Purchasing

VOL. 38, No. 5 MAY, 1	955
Cover photo: Carl A. Ilgenfritz, Vice President—Purchases,	
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#### EDITORIAL AND EXECUTIVE OFFICES

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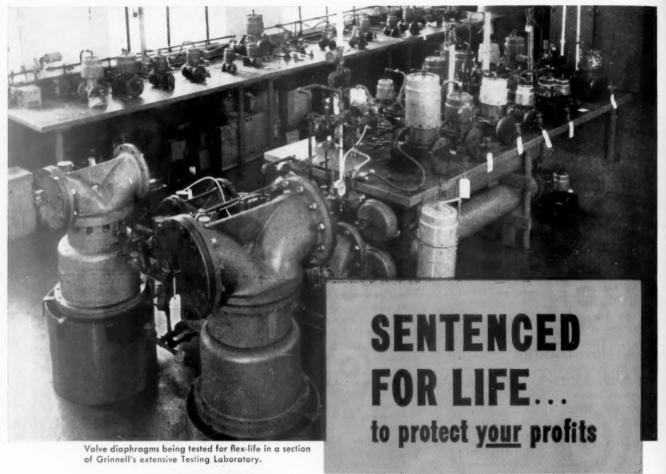
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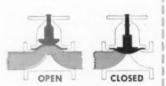
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Rubber mill for mixing experimental diaphraam compounds.



#### Check these important features:

- Diaphragm absolutely isolates working parts from the line fluid.
- Diaphragm lifts high for full, streamline flow in either direction.
- Diaphragm effects positive, leak-tight closure.
- Body, lining and diaphragm materials to suit service.
- Diaphragms easily replaced without removing valve body from line.

# **GRINNELL-SAUNDERS**



have won an envied reputation for long, trouble-free service under the toughest operating conditions. One reason is Grinnell's continuous test program. In this life-test laboratory, valves and diaphragms operate day and night, through thousands of opening and closing cycles, to pre-prove performance. Result - better valves for all types of services.

This program of continuous testing is the basic reason why so many different industries are turning to Grinnell-Saunders for diaphragm valves with preproved performance. There are standard types for a wide variety of applications . . . in the handling of corrosive liquids, gases, beverages, compressed air, fluids loaded with suspended solids - on lines where leakage, corrosion, clogging, abrasion, or contamination could be costly.

Are your valves giving you the dependable, long service life you must get to maintain economy and efficiency? If they are not, it will certainly pay you to consult a Grinnell engineer.





Grinnell Company, Inc., Providence, Rhade Island

Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings · welding fittings · engineered pipe hangers and supports · Thermolier unit heaters Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies Grinnell automatic sprinkler fire protection systems Amco air conditioning systems

For More Information Circle No. 108 on Inquiry Card-Page 17

For More Information Circle No. 109 on Inquiry Card-Page 17-PURCHASING



BOOM IN COPPER DEMAND

Industrial boom in many parts of the world is one of the main keys to materials shortage. Copper scarcity, which recently caused prices on the London market to reach highest in history. is largely due to boom conditions.

May 1, 1955

There is no one simple answer, however. There was the strike in Chile last year, and more recently in Rhodesia; also the fact that a large tonnage of Chilean copper now is going to the United Kingdom instead of to the U.S. Attraction, of course, is the higher European price.

Behind the British price surge is considerable market demand in Britain itself-some transshipment of copper wire and tube products to the U.S. at gray market prices-some shipments to Iron Curtain countries. The trade with the Reds contributes substantially both to the shortage of copper and to the high price.

In addition to a major boom in virtually every industrial country of the world, the production of armaments is going on full pace in virtually every industrial country.

GRAY MARKET PRICES

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British users are outbidding U.S. buyers for Chilean copper, even though from the buyers' position, the current market price for copper in the U.S. market is shaded upward by gray market pricing.

Clearest indication of this gray market is the fact that copper scrap prices have exceeded the quoted price for primary metal.

Aluminum supply and demand position similarly reflects the fact that there is increased civilian use, a steady and very substantial military use-and in addition, a considerable stockpiling program.

SHORTAGES LIKELY TO PERSIST

Tapering off in rate of auto manufacture later this year, or shutdown by strike, might tend to right the imbalance between supply and demand for both copper and aluminum.

It is important to note that so many factors are involved in the shortage of copper that just righting one of these factors will not cure the shortage, but merely relieve it.

From all indications, short of a major downturn in world in-

dustrial activity, the shortage will persist.

This latter indication offers a clue to how the Government will react to the shortages. Industry has been seeking a release of strategic stockpile copper as a temporary measure to relieve the shortages.



# 61,167 gauges...to deliver your Crane Valves 100% quality inspected

Care-how! A newly coined catch-phrase? Not at Crane! It is a rigidly-adhered-to principle of quality control—100 years old!

By way of example, the Crane technician in the photograph is checking the taper, size and guide slot alignment on gate valve discs. Every disc must correspond to the setting of the indicators—to tolerances of .001 inch plus or minus, on the taper, and .008 inch on the alignment of the slot guides. And Crane uses 61,167 gauges to insure dimensional accuracy.

Why this Care-how? To assure you of smoother, longer lasting valve operation, with lower maintenance and repair costs.

There you have the reasons why knowing and thrifty buyers prefer Crane valves... why industry uses more Crane valves than any other make! And the reasons why you should always buy Crane. Crane Co., General Offices, 836 S. Michigan Ave., Chicago 5, Illinois. Branches and Wholesalers serving all industrial areas.





### CRANE CO.

VALVES • FITTINGS • PIPE KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY...1855-1955

#### IKE FAVORS

Eisenhower Administration is placing increasing emphasis on foreign trade—especially the promotion of trade among the Western nations. Britain, Japan and Western Germany have historically been dependent upon trade for an important slice of their markets for industrial goods.

To keep these countries out of the <u>Iron Curtain orbits of trade</u> will require that trade opportunities be provided among the friendly nations.

Our Government has become increasingly committed to this approach, and most recently the Department of Commerce has placed considerable emphasis and a great deal of importance on U.S. participation in the trade fairs of Europe.

U.S. participation in the trade fairs of Europe.

Objective is to stimulate U.S. exhibits at these European fairs to create demand for U.S. products—also for U.S. buyers to attend fairs and buy European manufactures.

#### INVENTORY LEVELS

Since late Fall of last year, the <u>trend toward inventory</u> liquidation has been halted, and the level of inventory has remained stable. This is particularly important in relation to the <u>large volume of metals and materials</u> which have been moving from the raw material stages through processing and into consumption.

National inventory statistics show that materials have been moving through the industrial pipeline in great volume and that there has been little stoppage along the way.

This trend indicates that in durable goods, manufacturers are satisfied with the <u>currently established</u> ratio between inventory and sales.

#### MERGER TREND

Industrial mergers and concentration of industry are coming up for another round of <u>Congressional</u> and <u>Administrative</u> scrutiny.

There is an undercurrent of thinking that bigness is bad in itself. In the roaring '20's bigness was painted as dangerous because it was said to stifle competition through cartels-price fixing.

Now there is criticism that big corporations are so competitive in their practices and pricing—also in efficiency—that they force smaller concerns to the wall.

While the two positions are completely contradictory, there is nevertheless considerable fear that the mergers of companies in large number do represent an economic hazard.

These fears overlook the fact that the mergers largely are among smaller and middle-sized companies combining to achieve either greater efficiency, diversification of product, financial stability—or merely to improve their competitive position with larger companies in their own product field.

#### MARKETING PROBLEMS SPUR MERGERS

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ING

Many of the mergers involve companies which have developed a product for national distribution during the last two decades—growing in size under the <u>stimulus</u> of <u>military markets</u>, and now merging to put them in position to market their products commercially in a highly competitive field.

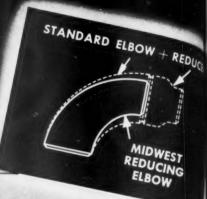
Best indication of what is likely to be done is that there is presently no clear outline of how much of an economic problem the merger trend will bring, and certainly no clear policy as to how

to deal with the trend—if at all.

From the political point of view, ever since the trust—busting days of "Teddy" Roosevelt, the subject of industrial bigness has made good political hay.



# REDUCING ELBOWS



6" X 3" MIDWEST REDUCING **ELBOWS** 

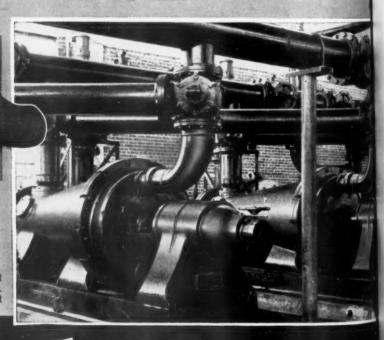
10" X 6" MIDWEST REDUCING **ELBOWS** 

The Midwest Reducing Elbow offers important advantages in both piping design and piping cost. It needs only two welds instead of the three required by a standard elbow and a reducer (see sketch above). There is also a saving in layout time. Turbulence and pressure drop are reduced by the gradual taper . . . less space is needed , . . insulation is easier . . . and piping appearance is improved.

Only Midwest Reducing Elbows are available from stock in sizes to 16"...larger on special order. They have the same dimensional accuracy, uniformity of wall thickness, exact included angle and true center-to-end dimensions of Midwest Straight Elbows. For further information, ask for Catalog 54.

Midwest Reducing Elbows made it possible to fabricate this transformation piece for a boiler feed suction line so that it could be installed in the limited space available and still get the benefit of streamline flow. There was also a cost saving in comparison with a less efficient and bulky assembly made with straight tees, ells and reducers.

> Paper stock flows with minimum resistance through Midwest Reducing Elbows from 8" connection on Jordan to 10" header. Other advantages over standard elbow and reducer: a saving in cost and space, and improved appearance.



MIDWEST WELDING FITTINGS Improve Piping Designs and Reduce Costs

MIDWEST PIPING COMPANY, INC.

Main Office: 1450 South Second Street, St. Louis 4, Mo.

Plants: St. Louis, Passaic, Los Angeles and Boston

#### **NEW INFORMATION FOR YOUR**

# Catalog Files



#### PROPER HOSE CUTS DOWNTIME

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Catalog No. 55 is a compendium of industrial hose assemblies, couplings, stems, swivels and accessories. How leaking, faulty hoses contribute to plant downtime is stressed.

J. N. Fauver Co.

Circle No. 1 on Inquiry Card-Page 17

#### CYLINDERS FOR MANY PURPOSES

Full information on a line of heavy duty 200 psi air cylinders, with specifications, is supplied in bulletin A-105K. Similar treatment of 2000 psi hydraulic cylinder is given in bulletin H-104K.

Miller Fluid Power Co.

Circle No. 2 on Inquiry Card-Page 17

#### **ALLOY CASTINGS TO RESIST TEMPERATURES**

Valuable engineering data concerning high alloy static and centrifugal castings that resist high temperatures, corrosion and abrasion are given in 16-page bulletin, No. 3354-G.

The Duraloy Co.

Circle No. 3 on Inquiry Card-Page 17

#### **ELECTRICAL PRODUCTS DESCRIBED**

More than 600 electrical products, including many new items, are described in a 48-page, two-color catalog. Illustrations of products are printed for quick identification.

Rodale Mfg. Co., Inc.

Circle No. 4 on Inquiry Card-Page 17

#### CARBIDE TOOLING IMPROVES WOODWORKING

Showing how carbide tooling can be substituted for better production on many woodworking machines operating with steel tools, bulletin WW-20 compares performance of carbides with steel.

Carboloy Dept., General Electric Co.

Circle No. 5 on Inquiry Card-Page 17

#### **NEW TAP MARKING SYSTEM**

Catalog No. 80 includes a simplified guide to the new tap marking system. A conversion table changes old designations to new. Full line of taps is illustrated with sizes and prices.

Besly-Welles Corp.

Circle No. 6 on Inquiry Card-Page 17

#### DO YOU USE ALUMINUM SECTIONS?

To assist manufacturers and fabricators who utilize standard aluminum sections, a 60-page book is available. Indexed for easy reference, it summarizes advantages of special shapes.

Harvey Aluminum

Circle No. 7 on Inquiry Card-Page 17

#### **CUTS MATERIALS HANDLING COSTS**

Versatility of a dragline conveying system and its contribution to reducing unit cost of materials handling in warehouse, truck and railroad terminals form text of 24-page book No. 2497.

Link-Belt Co.

Circle No. 8 on Inquiry Card-Page 17

#### SEALING ROTATING SHAFTS

Latest methods of sealing all types of rotating shafts are described in the 12-page bulletin No. 10. Five standard designs of seals handle range of applications to 1000 psi pressures and 450 F.

Sealol Corp.

Circle No. 9 on Inquiry Card-Page 17

#### WHERE NICKEL ALLOY CAST IRON IS USED

Bulletin A-71 (64 pages) has 96 figures, 15 tables and charts dealing with the applications of "Ni-Resist," a corrosion-resistant nickel alloyed cast iron, in 9 specific industries.

International Nickel Co.

Circle No. 10 on Inquiry Card-Page 17

#### FLOOR TRUCKS FOR MANY USES

Full technical data and specifications on a line of floor trucks are contained in catalog No. 100. Covered are platform, wagon, shelf & tray and box trucks; skids, dollies, etc., for all purposes.

Hamilton Caster & Mfg. Co.

Circle No. 11 on Inquiry Card-Page 17

#### WHAT HOSE TO USE

Four different catalogs list the recommended uses, construction, and specifications of welding, steam, air and petroleum hose. Cut-away illustrations show construction.

Boston Woven Hose & Rubber Co.

Circle No. 12 on Inquiry Card-Page 17

#### STORAGE, MAINTENANCE EQUIPMENT

A 24-page catalog, spiced with cartoons by national artists, lists all types of steel shelving, lockers as well as other storage and maintenance equipment for every type of industrial use.

Precision Equipment Co.

Circle No. 13 on Inquiry Card-Page 17

### WHAT AIR DIFFUSER TO SELECT

**HOW TO CHOOSE SOLENOID VALVES** 

A 64-page selection manual contains 100 illustrations showing installation, design and use of aspirating, air diffusers. It presents data on selection of proper unit for any purpose.

A general catalog, written in non-technical lan-

guage and illustrated by photos and charts, deals

with solenoid-operated valves. It describes basic types and variations and how to choose the right

Circle No. 20 on Inquiry Card-Page 17

Skinner Electric Valve Div., Skinner Chuck Co.

Anemostat Corp. of America

Circle No. 21 on Inquiry Card-Page 17

#### INERT GAS ELECTRODE

Descriptions of fillet, lap, butt and plug welds made with a new process are contained, accompanied by actual photos, in booklet B-6525. The electrode permits the use of straight polarity.

Westinghouse Electric Corp.

Circle No. 14 on Inquiry Card-Page 17

#### DESIGNING HYDRAULIC, PNEUMATIC SYSTEMS

A "Yellow Book" claims to be the most comprehensive catalog of industrial hose and fitting ever compiled. Its 132 pages facilitate designing hydraulic & pneumatic control systems.

The Weatherhead Co.

Circle No. 15 on Inquiry Card-Page 17

#### DIFFUSERS ARCHITECTURALLY CONFORM

Complete information on various ceiling diffusers and returns that match the appearance of acoustic ceiling tile is contained in a 24-page catalog, No. F 6597. They blend with surroundings.

Barber-Colman Co.

Circle No. 22 on Inquiry Card-Page 17

#### EFFICIENT CONTOUR MACHINING

Machines that saw, file, polish and grind and which feature hydraulically powered tables and controls are described in a 20-page catalog. A section covers accessories for band machining.

DoALL Co.

Circle No. 16 on Inquiry Card-Page 17

#### PROPERLY INSTALLED THERMOCOUPLES

Bulletin P1238 (56-pages) is a buyers guide containing data on the selection and installation of the proper types of thermocouples, wells and other pyrometer accessories.

The Bristol Co.

Circle No. 23 on Inquiry Card-Page 17

#### STRAIGHTENING PIPE AND TUBE

Technical bulletin No. 55 is a most comprehensive authority on the general subject of straightening ferrous and non-ferrous pipe and tube. It discusses 2-plane versus rotary machines.

Mackintosh-Hemphill Co.

Circle No. 17 on Inquiry Card-Page 17

#### **ADVANTAGES OF CAST ALLOY TOOLING**

A comprehensive variety of cast alloy cutting tools—bits, cutoff blades, inserts, etc.—is listed in catalog No. 55. A section outlines advantages of cast alloy tooling over carbides.

Crobalt, Inc.

Circle No. 24 on Inquiry Card-Page 17

#### TAPES USEFUL IN METALWORKING

Hundreds of ways in which pressure-sensitive tapes serve the metalworking industry are described in a 56-page manual. It contains 311 illustrations showing how 47 types of tapes can be used.

Minnesota Mining & Mfg. Co.

Circle No. 18 on Inquiry Card-Page 17

#### "IN RECOGNITION"

Award and testimonial plaques, as well as signs and nameplates, are reproduced in a 50-page brochure. They serve as a guide to selecting the proper design for commemorative events.

International Bronze Tablet Co.

Circle No. 25 on Inquiry Card-Page 17

#### **CUTTING COSTS WITH CABLES**

A booklet is available on rubber-insulated cable constructions. They are designed to save costs where rigid conduits are not feasible. They stand temperatures to 85C; voltages to 15kv.

The Okonite Co.

Circle No. 19 on Inquiry Card-Page 17

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Additional Catalogs on Page 20

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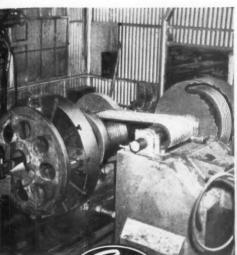
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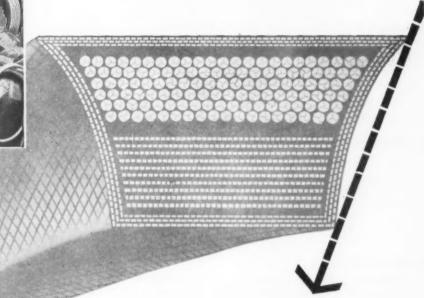
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The smooth, positive flow of power transmitted through Gates Vulco Ropes enables this large engine lathe to handle quickly and efficiently many tough oil field repair jobs.



# How Concave sides cut V-belt costs!



Plants all over the world have made this discovery: Gates Vulco Ropes-the V-belts with concave sides-wear longer; cost less per year of service.



#### Here is the interesting reason why:

When the Gates Vulco Rope is bent around the sheave, the precisely engineered concave

sides (Fig. 1) fill out and become straight (Fig. 1-A). Thus the belt makes full, uniform contact with the sides of the pulley. You get sure pulling power and even distribution of wear.

Longer wear saves not only on replacement costs; it also saves the cost of down-time... keeps equipment producing.



#### It's easy to prove to yourself the value of concave sides



Simply bend a straight-sided belt (Fig. 2) and feel the bulge at the sides around the bend. You will quickly see why the bulg-

ing sides prevent an even fit in the pulley groove (Fig. 2-A). Uneven contact shortens belt life...increases belt

Cut belt replacement time and costs...specify Gates Vulco Ropes-the V-Belt with concave sides (U.S. Pat. 1813698). The Gates Rubber Co., Denver, Colorado-World's Largest Maker of V-Belts.

> Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA - 30 - A - C





For More Information Circle No. 116 on Inquiry Card-Page 17

MAY, 1955

#### UTILITY STORAGE UNITS

A comprehensive catalog lists a complete line of steel storage equipment. Included are cabinets, shelving, lockers, parts bins, etc. Examples of recent large installations are shown.

Star Steel Equipment Co.

Circle No. 26 on Inquiry Card-Page 17

#### WELDING MACHINES FOR MANY PURPOSES

Forty-six types of automatic welders for submerged arc, resistance and Heliarc welding operations are described in a 54-page, spiral bound catalog. Included are automation machines.

Expert Welding Machine Co.

Circle No 27 on Inquiry Card-Page 17

#### PLATING PROCESS AND PRODUCTS

The two color bulletin, PP-100, lists 261 electroplating and metal cleaning products under 63 different classifications. Also outlined are 17 plating and cleaning processes and uses.

Hanson-Van Winkle-Munning Co.

Circle No. 28 on Inquiry Card-Page 17

#### HARDWOOD FOR EVERY USE

A buyers' guide gives in 58 pages complete information about Southern hardwoods. It includes descriptions of the important species with properties. It lists reliable suppliers.

Southern Hardwood Producers, Inc.

Circle No. 29 on Inquiry Card-Page 17

#### VARIOUS BEARINGS DESCRIBED

A size and capacity bearing handbook deals with different types of full type roller bearings. There are cut-away photos and line drawings of each model with load capacity tables.

McGill Mfg. Co.

Circle No. 30 on Inquiry Card-Page 17

#### **BRAZING METHODS OF JOINING METALS**

A 24-page manual deals with major brazing methods used in joining metals by means of silver alloys, and filler metals, fluxes, and gas atmospheres. Tables are supplied.

Air Reduction Sales Co.

Circle No. 31 on Inquiry Card-Page 17

#### SHAPED WIRE CUTS MACHINING COSTS

The use of shaped wire to reduce machining costs is dealt with in a 16-page illustrated booklet (DH-1226). Included are physical properties charts, standard wire gages and stock lists of steels.

Page Steel & Wire Div., American Chain & Cable Co.

Circle No. 32 on Inquiry Card-Page 17

#### STREAMLINED REMOTE CONTROL

How terminals for remote control systems need not be cobbled in the plant is shown in Design Manual No. 553. It contains full data on flexible shafting, valve operation, etc.

Stow Mfg. Co.

Circle No. 33 on Inquiry Card-Page 17

#### STEEL STRAPPING FOR PACKAGING

Some of the applications of steel strappings in packaging products of various industries are covered in a 36 page book. It contains histories, cost savings and material charts.

Gerrard Steel Strapping Div., U.S. Steel Corp.

Circle No. 34 on Inquiry Card-Page 17

#### CORROSION-PROOF VENTILATING SYSTEMS

A comprehensive eight-page brochure is designed to aid the selection and installation of corrosionproof polyethylene ventilating and exhaust systems. It lists completely prefabricated units.

American Agile Corp.

Circle No. 35 on Inquiry Card-Page 17

#### FACTORS IN FASTENER DESIGN

All the variables to be considered in buying and specifying fasteners are discussed in a 24-page engineering data brochure. Chart gives wrench torques of various nuts.

National Machine Products Co.

Circle No. 36 on Inquiry Card-Page 17

#### WHICH WASHER TO USE WHERE

A 21-page catalog lists 16 types of standard washers. In addition, there are drawings of 48 designs of special washers. Catalog helps user determine which of 15,000 units fits a job.

The Master Products Co.

Circle No. 37 on Inquiry Card-Page 17

#### WROUGHT IRON PIPE DESCRIBED

All the technical data required by buyers and users of wrought iron pipe and tubing is contained in a 52-page manual. Size and dimensional data are listed in 25 tables.

A. M. Byers Co.

Circle No. 38 on Inquiry Card-Page 17

#### **OPERATING MACHINE TOOLS PROFITABLY**

A 24-page booklet shows how a pneumatic bar feed, by keeping pace with time, feeds stock continuously into screw machines, lathes, presses, etc., for up to 8 hrs. It speeds output.

Lipe-Rollway Corp.

Circle No. 39 on Inquiry Card-Page 17

#### WHERE LAMINATED, MOLDED PLASTICS ARE USED

More than 35 types and grades of laminated and molded plastics are discussed in a 12-page bulletin. Typical applications using sheet, rod, and tubes are pictured and described.

The Richardson Co.

Circle No. 40 on Inquiry Card-Page 17

# Circle Inquiry Card Opposite Page 17 to Obtain These Catalogs



### make it TRENTWELD

### There is a Trentweld Tubing to fit all your requirements

Aircraft Tubing
Beverage Tubing
Formed Tubing
Heat Resistant Tubing
Large Diameter Tubing
Mechanical Tubing
Ornamental Tubing
Pressure Tubing
Shaped Tubing

# TRENTWELD

#### for dimensional accuracy . . . physical uniformity

Back of TRENTWELD tubing's reputation for trouble-free service is its manufacture by *tube mill specialists*. But it is not the welding alone — it is the Trentweld process after welding that makes it superior to other tubing.

That's why TRENTWELD means accurate, uniform tubing

That's why TRENTWELD means accurate, uniform tubing . . . with excellent corrosion resistance . . . high strength and light weight. And TRENTWELD's smooth surface is easy to clean. It's the right choice where long life and efficient performance are needed.

formance are needed.

Important, too, is Trent's wide range of sizes, shapes and grades — the largest in the industry. ½" to 40" OD are standard, and even larger sizes can be supplied if you need them. So whatever your tubing requirements are, remember, you can't buy better tubing than TRENTWELD.

#### STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

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# NEWS OF YOUR Suppliers



American Chain & Cable Co., Inc., New York, has named Vincent E. Lysaght as general sales manager. He



V. E. Lysaght

was formerly divisional manager of the Helicoid, Campbell Machine and Wilson divisions of American Chain.

C. Allen Dolby has been named general sales manager for the Brainard Steel Division of Sharon Steel Corp., Warren, Ohio.



A. M. Thomas

A. M. Thomas has been appointed director of sales for the Heller Brothers Co., Newcomerstown, Ohio.

Lamson Corp., Syracuse, N. Y., has announced personnel changes in its San Francisco branch. T. B. Sturges is now regional manager for the 10 western states. The assistant west coast regional manager is A. S. Asquith, a veteran of 36 years with Lamson. In addition, two new field engineers have been added to the San Francisco force. They are: Allen P. Cook and C. Don McNutt.



A. W. Cain

Volco Brass & Copper Co., Kenilworth, N. J., has promoted Arthur W. Cain to vice president in charge of sales. He was formerly Volco's eastern regional sales manager

Atkins Saw Division, Borg-Warner Corp., Indianapolis, has appointed John G. Deutsch as western industrial division manager, and James E. Good as central industrial division manager. Mr. Deutsch was formerly sales manager for Acme Industrial Supply Co. Mr. Good, before joining Atkins, was with J. H. Williams Co. as manager of the firm's Chicago district. Additional appointments in the division are: James E. Butler, formerly sales manager for N. A. Strand Co., is now eastern division manager for both the industrial and hardware sales; W. H. Brace, now northwest industrial division manager; and W. M. Barber, industrial sales representative in northern Oregon.

The appointment of Edward T. Day as general sales manager of the mechanical goods division, has been



E. T. Day

announced by United States Rubber Co., New York. He was formerly manager of branch sales for the division, and is succeeded in that post by Purdy Miller.

Ralph W. Bailey is now sales manager of the Continuous-Cast Products



R. W. Bailey

Department of American Smelting and Refining Co., New York.



Here's Rope that takes the toughest service!

## MONARCH WHYTE STRAND Wire Rope by MACWHYTE

This top quality Rope is available in all classifications—in the size and construction that will serve best on your equipment. MONARCH WHYTE STRAND is highest strength Wire Rope, made of Improved Plow Steel.

To meet the needs of all equipment and the toughest of service conditions, there are a thousand and one types, sizes, and grades of MONARCH WHYTE STRAND Rope. Each of the Wire Ropes in this selection is designed to fill an equipment need and to assure longer, safer service at lower operating cost.

These Ropes are available Internally Lubricated, PREformed, Lang Lay or Regular Lay, Fiber Core, or Independent Wire Rope Core. Wire combinations vary from 42 wires in 6 x 7 construction to 343 wires in 6 x 49 IWRC construction.

Put MONARCH WHYTE STRAND Wire Rope on your equipment. Enjoy the advantages of having the rope that will take the toughest service.

# MACWHYTE

WIRE ROPE ·SLINGS · WIRE ROPE ASSEMBLIES

Macwhyte Company • 2918 Fourteenth Avenue • Kenosha, Wisconsin

MILL DEPOTS: New York 4, 35 Water Street

Pitisburgh 19, 704 Second Avenue hicago 6, 228 So. Desplaines Street Rope; and Wire Rope Assembles.
Ft. Worth 1, P.O. Box 605
Portland 9, 1603 N.W. 14th Avenue
Seattle 4, 87 Holgata Street
San Francisco 7, 141 King Street
Los Angeles 21, 2035 Sacramento Street



Ask for MONARCH WHYTE STRAND Bulletin 5425.

For the proper Wire Rope size and construction for your equipment, request a Macwhyte recommendation.

For More Information Circle No. 118 on Inquiry Card-Page 17

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E. J. Weller, carbide design and application engineer, Carboloy Depart-



E. J. Weller

ment of General Electric Co., Detroit, has been named manager of tool sales. Mr. Weller joined GE back in 1937.

National Vulcanized Fibre Co., Wilmington, Del., producer of vulcanized fibre and laminate plastics, has elevated two department executives. Gerard A. Albert, formerly staff manager, is now manager of manufacturing. Henry C. Guhl, formerly manager of process engineering, is now manager of engineering.

The appointment of Fred Osann, Jr., as staff executive and director of forward planning for the Automotive Body Division, has been announced by Chrysler Corp., Detroit. Mr. Osann has been with Chrysler since 1939 and was most recently manager of the Chrysler Jet Engine Plant.

The Brandon Equipment Co., Chicago, has been named by R. M. Hollingshead Corp., Camden, N. J., as distributors of Hollingshead maintenance chemicals to the railroad industry.

Kaiser Steel Corp., Oakland, Calif., has named John W. Miller as manager of product planning.

Acheson Colloids Co., Port Huron, Mich., has named Wallace J. Keith as sales engineer for the new Dayton, Ohio, office. Mr. Keith will provide technical service to Acheson customers in western and southern Ohio, as well as most of Indiana and Kentucky.

Norman B. Wienke has been elected president and director of sales for Cullman Wheel Co., Inc., Chicago.

Three new distributors have been designated to handle products of the Welding Department, General Electric Co., Schenectady. Handling GE's arc welders, electrodes, etc., are Weld-Arc Sales and Supplies, Inc., New York; Interstate Welding Supply Corp., Elizabeth, N. J.; and T. H. Green Co., Rochester, N. Y.

The Upson-Walton Co., Cleveland, has appointed E. D. Baskin as director of sales. Mr. Baskin, who joined the company in 1919 as a salesman, was most recently general sales manager.

J. A. Klaiber has been appointed district supervisor of the Air Conditioning and Refrigeration Division, Worthington Corp., Harrison, N. J., in the St. Louis district office.

Commander Mfg. Co., Chicago, manufacturers of production drilling and tapping equipment, has elected Frank J. O'Laughlin as president.

Industrial Crane & Hoist Corp., Chicago, manufacturers of overhead cranes, monorail systems and crane runways, has appointed Lewis W. Bentley as manager of the firm's Detroit office.



G. E. Farren

George E. Farren has been appointed a field engineer by the Norton Co., Worcester, Mass. He has been assigned to the Hartford, Conn., district office.

Ladish Co., Cudahy, Wis., has appointed Fred K. Krell as assistant sales manager, Fittings Division.

John S. Davey, formerly assistant general sales manager of Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N. Y., has been made a vice president of RB&W. Mr. Davey has been with the company for 25 years.

Rolled Steel Products Corp., Skokie, Ill., has elected Scott F. Burton as vice president in charge of sales. Mr. Burton, who joined the company in 1949, has been sales manager since 1950.

Standard Steel Works Division of Baldwin-Lima-Hamilton Corp., Burnham, Pa., has named C. J. McGowan as a sales engineer. Mr. McGowan will cover western Pennsylvania and West Virginia.

Robert W. Orr has been assigned government liaison activities for the Electronics Division of Erie Resistor Corp., Erie, Pa. Westinghouse Electric Corp., Pittsburgh, has named C. Spence Purnell as manager of the company's south Pacific district, with headquarters in Los Angeles. The district includes southern California, Arizona, and Las Vegas, Nev.

J. B. Sewell has been elected a vice president of **The Garlock Packing Co.**, **Palmyra**, **N. Y.** He started with Garlock in 1935 as a sales representative in the Montreal area.

Richard V. Abbott has been made a sales representative in the Dayton area for Columbia Steel & Shafting Co., Pittsburgh. He was most recently the sales representative in the western Michigan territory.

The Dodge Division, Chrysler Corp., Detroit, has named James S. Ross as executive assistant to K. C. Deacon, vice president and general manager—trucks.

Enamelstrip Corp., Allentown, Pa., has named Ira W. Fine as Philadelphia area sales manager. He will headquarter in Pennsauken, N. J.

Gene R. Voigt has been appointed assistant to the general manager of the Air Tool Division, Aro Equipment Corp., Bryan, Ohio. He was previously sales manager of Mill Supply & Machinery Co., St. Louis.

The E. L. Berman Co., San Francisco, has been appointed by Electric Regulator Corp., Norwalk, Conn., as sales representative in northern California and part of Nevada.



G. F. Witt

Gordon F. Witt has been named field representative for the tubular products and cold finished bar department in Milwaukee of Joseph T. Ryerson & Son, Inc., Chicago.

Additional News of Your Suppliers will be found following the Industrial Development section Pitts-

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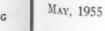
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THEY RE-PACK UNDER PRESSURE Any O-B standard pressure valve can be re-packed under full pressure. With valve in the full-open position, a bevel on the stem forms a seal against inside of centerpiece so that no leakage occurs. Re-packing under pressure is just one advan-

tage of using O-B bronze globe and gate valves. You can buy them

from your Ohio Brass distributor.

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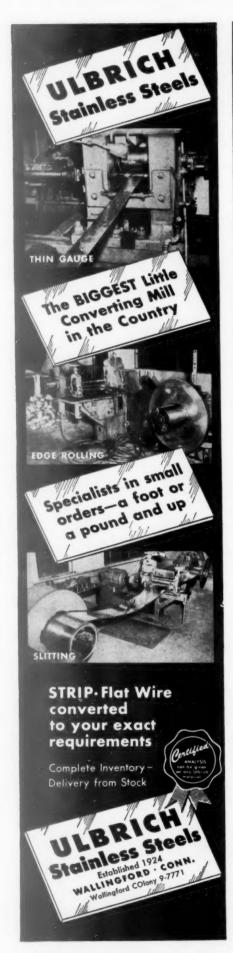
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For More Information Circle No. 123 on Inquiry Card—Page 17

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#### FILOSOFY OF BUYING

AST MONTH, in this column, we reported on the centralized purchasing plan for Maine communities set up by Lester F. Wallace of Portland, and commented on the wide interest expressed by communities in other states. Since then, two states have invited Mr. Wallace to set up branches to serve their areas. Mr. Wallace is quite willing to furnish information about his method of operation, but de-clines to be drawn into "foreign" activities. "I'm a Maine-iac," he says, as if that explains everything. And to a Maine-iac, it probably does

B ACK in 1952, when the pendulum was swinging from a sellers' market to a buyers' market, the Detroit P. A. Association teamed up with the Sales Executives Club for a panel discussion of "Ethics in Buying and Selling" at a joint meeting of the two organizations. It was so popular that other business groups prevailed upon the panel to repeat it. Now, three years later, the show is still on the road, being featured recently at Michigan State College's Business Executives Conference at East Lansing.

RECIPE for success, for the small businessman, was given by Administrator Wendell B. Barnes of the Government's Small Business Administration at a recent "new products seminar" in New York. All the little fellow needs, he said, is "the inventiveness of an Edison, the craftiness of a Machiavelli, the showmanship of a Barnum, and the ethics of a Sunday school teacher." Trouble is, that when he has mastered all these attributes, he'll probably become a big businessman.

CHIEF P. A. Max Alcock of the Parsons, Kansas, Ordnance Plant, got into the news a few weeks ago for bagging a quail out of season. His technique is rather mysterious, even to himself, for he found the bird fluttering under the hood of his automobile, between the radiator and the grill, and hasn't the slightest idea of how or when it got there. He promptly released his prize, to avoid getting into trouble with the Fish and Game Commission. (Mr. Alcock's father is a member of the Commission.)

A LSO QUOTED at the seminar was the late comedian W. C. Fields, whose sage advice was: "If at first you don't succeed, quit. There's no sense in being a fool about it."

B IG ADVANTAGE of small business, according to Arthur H. Motley of Parade Publications, is that it is not hampered by such big business devices as committees. He defined a committee as "something which consists of persons who are unfit, appointed by some one unwilling to do a job, which, in the last analysis, happens to be unnecessary."

WHEN Edgar H. Tunelius left Chicago in 1949 to become purchasing agent for Armour & Co. at Alliance, Ohio, he resolved to give up his Boy Scouting activities because he was sure he wouldn't have the time for extra-curricular work on his new job. Besides, he had already devoted twelve years to scouting. But he hadn't counted on the pull at his heartstrings: scouting was a part of his life, and competent adult leadership was needed. Almost before he knew it, he was back in harness as neighborhood and district commissioner, troop and pack board committeeman, executive member. At the recent annual meeting of McKinley Area Council, BSA, Mr. Tunelius was called to

PURCHASING

the platform and presented with the Silver Beaver, highest award in Boy Scouting.

THE Lincoln (Neb.) Farmer editorializes on the husbandman's job as compared to that of the man in industry. We are intrigued by the editor's choice of adjectives:

"Today's farmer tops the man who owns and operates a small factory. His capital investment is bigger, so he's a Financier. He's got to know marketing better than a Sales Manager. He's got to buy smarter than a high-salaried Purchasing Agent

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AST WORD in ultra-modern functional architecture and decoration, according to the Phoenix-(Ariz.) Republic, is the sky-lighted bachelor home of T. F. Washburn, purchasing agent of a food machinery company in that city. Built to Mr. Washburn's design, it follows a modified Japanese theme, with mahogany panel walls, blond ceiling, and tan concrete slab floor, a window wall overlooking the circular swimming pool in the patio, and sliding Shoji screens for privacy and insulation.

DURCHASING AGENT R. L. Kreuger of Goodman Mfg. Co. Chicago, and President of the Chicago Association, described "Salesmen Who Don't Succeed" for the benefit of the Sales Executives Club at a recent meeting. Among the types he mentioned were:

The "week end guest" who takes over his prospective customer's office, loosens his tie, and settles down for the afternoon.

The "knocker," who devotes his entire interview to running down his competitor's product.

The "by-passer," who spends all his energy and ingenuity trying to get around the purchasing department.

The "nonchalant" salesman who casually drops in 10 minutes before lunch or just at closing time, explaining that he just happened to be in the neighborhood.

The "big shot," who tries to impress the buyer with his individual importance.

The "nameless" salesman, who never does get around to identifying himself or the company he repre-



Are you using wire cloth or wire cloth parts which must be corrosion resistant? Are the service conditions in your plant really tough? If you have a problem selecting the proper anticorrosive alloy, Newark Wire Cloth may have the answer.

Available in all corrosion resistant metals, Newark Wire Cloth is accurately woven in a wide range of meshes, ranging from very coarse to extremely fine.

If you have a wire cloth problem involving corrosion, please tell us about it . . . we may have the answer.



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For More Information Circle No. 124 on Inquiry Card-Page 17



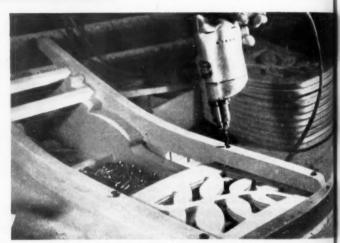
# FASTER, TRIMMER, LOWER COST ASSEMBLY

...with Phillips Cross-Recessed-Head Screws

"100% FASTER PRODUCTION with the Phillips cross-recessed-head screws than with the slotted type," comments the manufacturing manager for the Daystrom Furniture Company, Olean, N. Y., wood and metal furniture manufacturers, and enthusiastic users of Phillips screws since 1941. "We use several million Phillips screws per year and we are completely sold on them."



SELF-CENTERED TEAMWORK for efficiency is shown here as two workmen team up on a chair assembly using "self-centering" Phillips cross-recessed-head screws to produce the finest in furniture craftsmanship. The superintendent of a Drexel furniture plant in North Carolina states, "Burring and the incidence of the bit slipping and ruining furniture is negligible."



TO PROTECT FINE FINISH. "We would have slippage and cut the back posts for a lot of chairs if we used a slotted screw instead this little Phillips beauty," says the finished wood department foreman of Stakmore Folding Furniture Co. plant at Owego, N.I. He enthuses about the Phillips cross-recessed-head screw, "In a wonder!"



THE FASTENERS
OF TODAY...
AND OF THE FUTURE

★ marks the spot
 ∴ the mark of extra quality

Allmetal Screw Products Company, Inc. • American Screw Company • Atlantic Screw Works, Inc. • The Blake & Johnson Co. • Central Screw Company • Contined Screw Company • The Eagle Lock Company • Elco Tool and Screw Corporation • Great Lakes Screw Corporation • The H. M. Harper Co. • The Lamson & Sessit Company • National Lock Company • The National Screw & Manufacturing Co. • Parker-Kalon Div. General American Transportation Corporation • Pheol Manufacturing Co. • Rockford Screw Products Co. • Scovill Manufacturing Co. • Shakeproof Div. Illinois Tool Works • The Southington Holmer. Mfg. Company Sterling Bolt Company • Universal Screw Company • Wales-Beech Corp.

#### Invoice Instructions

PURCHASING people frequently refer to the necessity of "educating" suppliers in respect to material requirements, in order to insure satisfactory deliveries. In many cases there is a corresponding necessity of educating them on proper billing procedures, to facilitate the processing of invoices and insure prompt payment.

Billing requirements are generally quite simple, specifying the number of invoice copies desired and the identification of packages and invoices with the applicable purchase order, to correlate them with accounting procedures. Too often, the plea that these requirements be observed is countered with the argument, "This is our standard invoicing procedure, and we can't be bothered with exceptions to suit every customer's accounting practices"—as if that closed the matter. It doesn't. Billing instructions are as much a part of the conditions of an order as any other clause. Failure to comply with them causes inconvenience and added expense not only for the buyer, but for the supplier as well when invoices are returned for correction, and when payments are delayed awaiting certification. At a time when administrative costs are under close scrutiny throughout industry, attention and corrective action could well be applied to this recurring phase.

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This discussion is prompted by the experience of a purchasing officer in a branch of the Public Health Service, whose efforts in vendor education over a period of some ten years, concerning this simple point, he ruefully reports "have been, at best, only partially successful. . . . A considerable number of invoices must be returned to vendors for corrections, some of which are minor in nature, but all of which are required prior to final processing for payment." The federal buyer cannot compromise with this problem, being bound by the rigid requirements of the General Accounting Office. But to a degree, the problem exists for every purchasing department in private industry as well. He, too, has internal accounting procedures which must be satisfied.

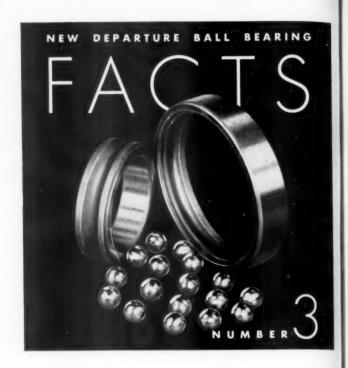
When payments are held up and lengthy correspondence ensues regarding billing instructions which a supplier chooses to ignore, many purchasing departments acquire a wholly undeserved reputation for stuffiness and red tape. Annoyed suppliers who classify such a buyer as an undesirable customer would do well to remember that the annoyance is mutual and that such details may spell the difference between getting on or off the preferred supplier list.

Perhaps the vendor's own salesman would be the best emissary, to exert his powers of salesmanship to bring the billing department into line.

Stuart F. Henritz

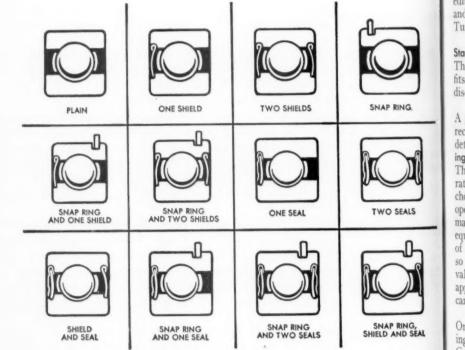
# This "wardrobe" fits standard ball bearings to CUSTOM OCCASIONS

Versatile is the word for New Departure standard ball bearings! For these bearings may be obtained in a wide range of standard variations (as shown below), opening a tremendous range of uses to the engineer. In other words, a standard bearing has a "wardrobe" which fits it for very nearly any occasion!





New Departure Single Row Conrad-type bearings, with standard variations available, illustrate the "wardrobe" principle which makes these ball bearings, with their dual load-carrying ability, the most readily adaptable of all bearing types.



Virtually any mounting or operating requirement within a wide range of usage is met perfectly by a standard New Departure ball bearing, in conjunction with shields, seals, snap ring, or combinations thereof. Shields protect the bearing from ordinary dirt both before and after mounting and, in many cases, provide adequate retention of lubricant. Seals give positive protection against dirt of every kind and make possible enclosed lubrication for extended or even lifetime service. Snap rings allow positive location in housings lacking inside shoulders. Whenever a design or engineering problem involves ball bearings, think of New Departure. Highly experienced ball bearing engineers are always ready to work with you.

Send for Booklet BA-8 on ball bearing application



NEW DEPARTURE . DIVISION OF GENERAL MOTORS . BRISTOL, CONN.

For More Information Circle No. 155 on Inquiry Card-Page 17

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This issue's important features summarized for the busy reader

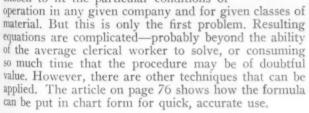


Purchasing for a gigantic and far-flung corporation like United States Steel is a tremendous responsibility. It is also a major problem in over-all administration, line and staff organization, personnel training, policy, research, public relations, foresight and planning. At USS these problems have been faced and solved in a manner that

has produced excellent results for the company and built real stature for the purchasing department. Our editors bring you a first-hand report on this competent and progressive purchasing organization in this issue. Turn to page 81.

Standardization is not new, but it is often overlooked. The article on page 128 cites some of the tangible benefits that can be achieved when standardization is "rediscovered" in the purchasing department.

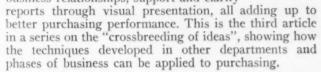
A good deal of thought and attention has recently been given to the mathematical determination of most economical Ordering Quantities for purchased materials. The formulas are available, but for accurate use, the variable factors must be chosen to fit the particular conditions of



One of the prolific sources of waste and cost in purchasing department operations is extravagant Poperwork. Government analysts have made a comprehensive study aimed at correcting this situation in all its phases-records, forms, reports, and correspondence. Their recommendations, pointing the way to improved practice at lower cost, can be put to work in any purchasing department. For details, turn to page 120.

The purchasing department has Two Basic Responsibilities to carry on an efficient and dependable service of supply, and to contribute to the over-all objectives of the company, agency, or institution. These responsibilities are the factors that govern departmental organization, as shown in the article on page 73, prepared by a management consultant with a background of purchasing experience.

Have you ever considered the uses of the Camera as a working tool for more effective purchasing? Probably not, but you will find eight specific cases listed in the article on page 113 in which photography has helped to save dollars, build good business relationships, support and clarify



Are you having trouble with Porous Castings? This common trouble is partly a matter of foundry practice, but in many cases the causes can be traced to improper design of parts and patterns which lead to difficulties in the casting process. Turn to page 124 for a check list of factors that will help eliminate this problem.

One of the big issues in current labor negotiations is the Guaranteed Annual Wage. Don't dismiss it as being merely a labor problem unrelated to purchasing. It may have significant effects on supply and distribution. This month's Purchasing Opinion poll surveys some pertinent aspects of the question. Turn to page 79.

Don't overlook these regular monthly departments, compiled for your information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 132); News of Your Suppliers (page 22), of Association Activities (page 182), and of Men in Purchasing (page 244); Keeping up to date on such developments makes for better buying.

#### NEXT MONTH—PURCHASING'S 7th ANNUAL COST REDUCTION ISSUE

How to set up a Value Analysis Program in your company Methods—Check Lists—Actual Case Studies

ASING



### The stainless you need is here

2221 sizes, shapes, finishes and types actually in stock

Here, in the world's largest stainless stocks, the exact steel you need is ready for immediate shipment—in any quantity. That's because Ryerson carries more tonnage in more types, shapes and sizes than any other source. Many requirements are available only at Ryerson. And, all Ryerson stainless is time-tested Allegheny Metal, the quality stainless you can depend upon.

Here experienced steelmen who know your industry's requirements are ready to work with you. And unexcelled specialized facilities are at

your disposal for sawing, shearing, flame-cutting or otherwise preparing stainless to your exact specification.

So for every stainless requirement—and for every kind of carbon and alloy steel as well—call Ryerson for quick, dependable service.

### RYERSON STEEL

In stock: Bars, structurals, plates, sheets, tubing, alloys, stainless, reinforcing, machinery & tools, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK . BOSTON . PHILADELPHIA . CHARLOTTE, N. C. . CINCINNATI . CLEVELAND DETROIT . PITTSBURGH . BUFFALO . CHICAGO . MILWAUKEE . ST. LOUIS . LOS ANGELES . SAN FRANCISCO . SPOKANE . SEATTLE

# The Nature and Organization of THE PURCHASING DEPARTMENT



By Albert Pleydell

THE AUTHOR is a well known management consultant, heading the firm of Albert Pleydell Associates, Inc., in New York City. Mr. Pleydell formerly served as Commissioner of Purchase for the City of New York, and is a founding member and past president of the National Institute of Governmental Purchasing.

This article is an address delivered at the Purchasing Conference sponsored by the Central lowa Association of Purchasing Agents, at Drake University, March 16, 1955. REGARDLESS of whether a purchasing department is part of a business firm, a governmental agency, or a non-profit service organization, it has two primary jobs to do:

 To render a specific service;
 To contribute effectively to the overall-work of the parent organization.

There is pretty general acceptance of the idea of service. Few indeed are those who will argue that purchasing is an end in itself, and that its operations should be geared to its own wishes. Purchasing is part of a larger function—that of supply. Many purchasing agents carry on storeskeeping and inventory control activities as well, but these are separate tasks that need not necessarily be combined with purchasing. As a part of the supply function, purchasing

is responsible for obtaining the goods or services needed, in sufficient time and at proper prices, to permit the orderly conduct of the work of the parent organization. Purchasing must be geared to that purpose.

With respect to the second job, that of making an effective contribution, it means that in a business concern the purchasing agent has a duty to help the company make more profit. This may get him into product research. It may lead him to work with those engaged in operations research. It may require him to develop some brand new ideas about component parts that will reduce costs and/or increase the efficiency of the assembly work, perhaps even result in greater salability of the company's products. In other words, the purchasing agent has the duty of

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thinking about what he buys rather than just doing a good job of buying the precise things he is asked to buy.

In a governmental or non-profit setup, where making money is not the motivation of the parent organization, the same situation exists, only we have to use different words. It becomes a question of aiding in the conduct of more effective programs, or helping to keep the cost of operations from getting out of line with available resources, or keeping administrative costs down so as to free more money for programs. But, when analyzed, these words really add up to the same thing-effectively contributing to the over-all work of the parent organization.

Thus, there is no fundamental difference in buying for business and buying for government, or colleges, or hospitals. The nature of purchasing is the same, regardless of the environment in which it operates. The things that are different are those that relate to the "local ground rules." In business there may be reciprocity; in government there may be politics; in non-profit agencies there may be contributors! The presence of such factors, or of other requirements, restrictions, or prerogatives, does not change the two basic jobs of purchasing one iota. What they do affect is the quality of the buying and the procedures that govern how it is done.

#### Organization Is Essential

There is no one best way to organize a buying office. Each purchasing department should be set up with full regard for the management policies, organization, and budget of the structure it is intended to serve. In the case of governmental units, a further point that must be considered is the statutory authority relating to organization in general and to procurement in particular. No matter how much one might like to have an organization constructed in a certain way, if the law says it must be done differently, it is the law that controls-at least until one can lobby an amendment through the proper channels.

Let's define "organization." I have already used the word in several different ways, and it has many more meanings. As we are now concerned with it, it means the structure or framework of a department, or the official relationships of the people working there.

No one can actually see organization. Look at a group of employees streaming out to the parking

lot; you can't tell who possesses what rank. Even if they all wore badges with names and titles, we wouldn't be seeing the *real* organization, but symbols that indicate the presence of organization.

You might compare it with the steel skeleton of a building. Once the building is completed, the framework is concealed. But we know from the shape and strength of the building that the skeleton must be there. If the building is well proportioned, true, and strong, we know that the skeleton is sound. If it begins to crumble, the chances are that the skeleton has been weakened. So with organization. When it exists, and is well balanced and in good health, the department is strong. When organization is unbalanced, or is in bad shape, the department is weak.

## FIVE TESTS OF EFFECTIVE ORGANIZATION

- 1. The Test of Simplicity
- 2. The Test of Functionalization
- 3. The Test of Delegation .
- 4. The Test of Control
- 5. The Test of Staffing
- 6. The Test of Evaluation

Since most workers are connected with existing departments, where the organizational structure is already established, there isn't much point in considering here how one goes about organizing a new purchasing department. Instead, let's concentrate on how one evaluates an existing organization—how one identifies its good features and detects its bad ones.

#### Criteria for Organization

When you are going to buy an important product, you establish criteria for testing the deliveries, so as to be sure that your standards are being met. Even before that, you have to decide what those

standards should be. Then you may want a competent and disinterested person to do the testing. That is one reason there are management consultants. Let's assume here that you are going to do your own testing.

That brings us back to the local ground rules. What, precisely, are the things the department must do, and how must it do them? Does it handle all buying or are some parts of buying assigned to another unit? Does it let construction contracts; run storehouses; operate equipment repair services; conduct central telephone, mail and messenger services; handle utility and insurance agreements; print forms and publications; roast coffee; compound pharmaceuticals; mix paints; operate a cannery; make soap, coffins, or window shades; glaze windows; keep a central equipment inventory; sell salvaged articles: supervise concessions; rent or assign space; maintain books of accounts; operate a motor pool; have a butcher shop; operate a cold storage plant; develop specifications: operate a testing laboratory; do blueprinting and photography; run a farm; operate a parking lot; make leases; run the public markets; or buy real estate? Every one of these enumerated functions is a purchase assignment at one place or another.

Once we are agreed on what the things are that the department is supposed to do, we come to the way it is supposed to do them. How does it obtain personnel, and thereafter promote or release them? Is it required to take bids; if so, in what way? What about its budget -who sets it up and who administers it? How are payments for goods to be made? Must the purchasing department handle its own legal matters or is there legal service available? If there is reciprocity, what sort of liaison must be maintained with the sales department? What records must be

When we know these things, we are ready to ask some searching questions.

Is the department properly set up to accomplish its objectives, i. e., to do the things management expects, in the way management wants them done?

Do duties overlap or duplicate?
Is there enough supervision, too
little, or too much?

Is the organization geared to meet management's requirements about bidding, or reciprocity, or records?

Can it produce the kind of re-

ports management wants when management wants them?

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To answer questions like these, we have to apply some tests.

#### 1. The Test of Simplicity

Is the organizational structure too complicated? Are there too many generals—or sergeants?

Could some of the units be merged? Or would it be simpler to operate if we created a couple of new units, so as to get an important function out where it can be managed more effectively?

Don't confuse size with simplicity. Some small departments are organized in a much more complicated fashion than their larger brethren.

#### 2. The Test of Functionalization

Are functions grouped logically or are some related functions arbitrarily split?

To be practical, we have to recognize that splitting functions illogically may sometimes be forced upon us by expediency. Maybe it's personalities, or salaries, or sometimes physical location that compel such an arrangement. But in making our test, let's be certain that the reasons are compelling and not merely historical. If you want to have an effective organization, it has to have a means for eliminating "sacred cows." Nothing does more to hamper an organization than having to put up with a lot of maladjustments caused by paying homage to tradition.

#### 3. The Test of Delegation

Is the organization built on the principle of giving people jobs to do, and giving them the authority to get them done? Or is it a oneman show, where "papa" knows everything, decides everything, does everything, and regards all of those around him as Hollywood yesmen? Maybe papa is the purchasing agent, or the chief storeskeeper, or the laboratory director. In other words, we may find that the whole organization is dominated by one man, or that a part of it is so dominated.

Modern management appreciates that every single employee can make a contribution, provided he is given opportunity and encouragement. A person cannot be held responsible for work that he lacks authority to do. The duties of every person, supervisors and staff alike, should be clearly spelled out, and he should know that he has the authority to perform those duties—the authority that everyone recognizes and respects as being neces-

sary to get things done. Delegating authority and responsibility is a two-way process, because it carries with it accountability of the subordinate to his superior, all along the line.

Is the purchasing department chock-a-block with "dead cats?" Is the storehouse running a terrific record of back orders? Is overtime the general rule instead of the exception? These conditions can have various causes, but one of the most common is lack of properly delegated responsibility and authority. The whole department literally mills around, waiting for the boss to issue the "orders of the day."

#### 4. The Test of Control

Are the procedures clear, simple, and complete? Are the records adequate and in good order? Do intelligible, yet brief, reports of status get prepared? In other words, how effective are the controls?

The best controls are the ones that are least obtrusive, yet which function smoothly. Where control is good, we can usually find a well-run organization.

Control implies the existence of standards of work performance. One needs to know what work ought to be accomplished, in order to be able to judge how well it is being done. The more objective the work standards can be made, the more effective will be the control that can be exercised over it.

As a purchasing department grows larger, the purchasing agent can find less and less time to personally check each incoming requisition. Some men, running big departments, claim they do read every single requisition. But when I have watched some of them do that reading, it was quite apparent that they were only kidding themselves. Unfortunately, that kidding can have serious consequences. Subordinates say, "Well, the boss saw this and didn't question it, so why stick out my neck?"

What is needed is to delegate the responsibility for reviewing requisitions and then to set up controls that will bring the exceptional cases to the boss' attention. One of the techniques by which the top managements of big businesses keep the reins on their companies is by controlling the exceptions to whatever conditions are deemed to be normal. This is a relative matter, of course. Many more situations will seem abnormal to a junior supervisor than to a division head; likewise, things that seem

abnormal to the division head may seem normal to the assistant purchasing agent. Thus, at each level, decisions are made and only a relatively few cases move up to the next level for action.

#### 5. The Test of Staffing

How well is the organization staffed? Are the right people in the right jobs? Are they well trained? Do they constitute assets or liabilities? Is there too much turnover? If so, what is causing it? Are any of the causes internal?

It is easy for a person to say he is leaving to make more money; that reason passes muster anywhere. But sometimes it is a way to avoid having to be frank about working conditions or supervision. It is important to get the real reasons.

Is there a planned approach to in-service training? Are staff members encouraged to broaden their mental horizons by some well chosen adult education? Is the reading of trade journals encouraged, or treated as something to be done surreptitiously?

#### 6. The Final Test—Evaluation

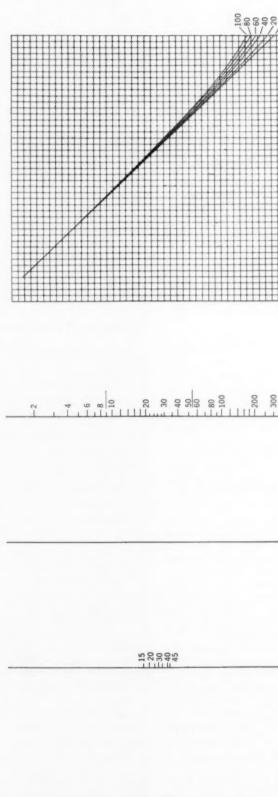
In a sense, evaluation is the process of deciding what all of our other tests mean. It is also a test that should be continuously applied to the work being done, and to the means employed for getting it done.

No organization can stand still. Change is inevitable. Hence, evaluation must also change in emphasis. One month we may be very much concerned over the quality of the typing. Another month, it may be prices. Then it may be record keeping. All parts of the job should be evaluated regularly. But today's evaluation techniques and standards may require change to meet tomorrow's work problems.

This discussion has dealt primarily with the management aspects of purchasing, but as the tests are applied they get down very specifically to the details of operation. Obviously, most of the points that have been made would apply with equal force to a sales department, a finance office, or the operation of a water works. That is because management is an art that is applicable to every phase of organized human endeavors.

When you buy something, you are acting in your professional capacity as a purchasing agent. But when you are administering the varied activities of your department, you are acting as a member of management.

STANDARD ORDERING QUANTITY



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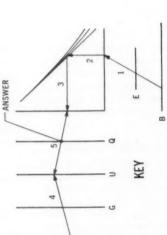
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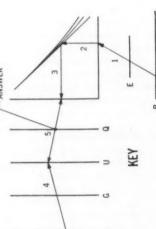
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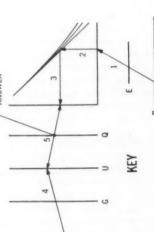
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I. INTEREST RATE ON MONEY PER YEAR, IN PERCENT AND USED AS A DECIMAL. 5% IN THIS CASE. S. RATE OF CONSUMPTION OF MATERIAL IN UNITS PER C. TOTAL PURCHASE PRICE OF ONE UNIT OF THE MATE-RIAL INCLUDING FREIGHT CHARGES, IN DOLLARS G. TOTAL COST OF PREPARING THE PURCHASE ORDER, IN DOLLARS

Q. STANDARD ORDERING QUANTITY IN NUMBER OF UNITS

Q = 2BE + C1 268

- B. NET STORAGE FLOOR AREA OCCUPIED BY ONE UNIT OF THE MATERIAL IN SQUARE FEET
- E. ANNUAL STORAGE CHARGE PER SQUARE FOOT OF STORAGE FLOOR AREA, IN DOLLARS

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4000-3000 2000

## **Best Ordering Quantity Chart**

Using an alignment chart to simplify calculations with a buying formula

#### By Martin H. Saltz

NE of the problems facing every purchasing department is to develop the most economical purchase quantity, or standard ordering quantity in which to buy an item. Since this problem is a recurring one, and varies from item to item, many efforts have been made to mechanize the procedure by using mathematical equations. Formulas for this purpose were first developed and published some thirty years ago. With the recent keen interest and rapid advancement in scientific purchasing, several others have appeared, varying somewhat from the original calculations.

#### Selecting the Formula

While it might be assumed that the mathematical relationships in solving such a problem do not change or vary, this is not necessarily the case. The mathematical approach to the problem may differ, and the relevance of the basic factors involved (rate of consumption, interest and storage charges, purchase price, quantity price differentials, cost of ordering, deterioration and obsolescence charges, etc.) vary from industry to industry and between firms within a particular industry. In some computations, some of these factors are not considered pertinent or important, and are omitted, while other factors specifically applicable to the operation are introduced. Generalizations are therefore to be avoided. It is felt that each concern must develop its own equation, or select an appropriate equation for computing the economical purchase quantity, based on a study of operations and avail-

Most of the formulas agree on the basic relationships between certain

of the factors. Usually, the quantity to be ordered varies as the square root of the consumption, and inversely as the square root of the cost of obtaining and carrying the item. As soon as the relationships between the factors get this complex, the formulas do not lend themselves to ready manipulation. This article does not propose to develop arguments either for or against these techniques, nor to advocate any particular formula. Rather, it is intended to show a technique for simplifying the handling of such equations

#### Simplifying the Solution

In the case of a large West Coast electronics firm, the formula developed by Davis and presented in Alford's "Production Handbook" was found to be directly applicable. This formula, shown in the lower left hand corner of the accompanying chart, though basic and useful, is unwieldy in that it does not readily lend itself to solution by unskilled clerks and other office personnel. In representative applications, some of the factors (such as interest and storage charges per unit) involve mathematical quantities of seven decimal points, or 1/100,000ths of a

Since it was necessary to make use of this formula quite frequently, it was soon evident that an easier method of solution was required for practical application.

In order to accomplish this, a nomograph was designed, and is shown herewith. A nomograph, or "alignment chart", is a device by which the relationship between various factors is graphically represented. It lends itself to easy solution of problems involving these relationships without requiring any algebraic skills. All that is needed is a ruler or straight-edge. Then, step

by step, starting with known factors and known relationships, the applicable values of unknown or variable factors are established.

#### A Specimen Calculation

As an example of the use of this nomograph, let us assume the following set of factors:

1. Annual storage charge per square foot of storage area is \$6.

2. Net storage floor area occupied by one unit of the item under consideration is 2 square feet.

3. Total purchase price of one unit, including freight charges is \$10.

4. The interest factor has been standardized at 5%.

5. The rate of consumption of this item is 4000 units per year.

6. The total cost of preparing the purchase order is \$15.

Solution of the equation for this set of factors, using the nomograph, consists of five steps. It is shown graphically in the "key" at the lower center section of the chart, where the successive steps are numbered.

1. Enter the chart on the B scale at lower right. Using a ruler, line up the value for B (2 square feet) with the value for E (\$6), and extend the line to its intersection with the horizontal axis of the quadrule section.

2. From this intersect draw a vertical line to the appropriate C line

From this point draw a horizontal line to the left edge of the quadrule section.

4. Enter the chart on the S scale at left. Line up the value for S (4000 units per year) with the value for G (\$15 cost of issuing purchase order) and extend this line to its intersection with the reference axis U.

5. Connect this reference point on the U axis with the point established in step 3. The intersection of this line and the Q scale gives a direct reading of the most economical ordering quantity—in this case, 78 units.

Although this explanation of the use of the nomograph for solving the equation may seem to be somewhat involved, the actual operation is relatively simple. It can certainly be mastered in far less time than it would take to solve the equation by other means.

Using this technique has enabled the company for which the nomograph was designed to delegate this duty to employees who otherwise would take much longer to compute the standard ordering quantity for each item, or who would be totally unqualified to cope with the mathematical problem.

#### Words of Warning

The simplicity of the method may be deceptive. There are several things that must be kept in mind in using a nomograph.

1. The nomograph is designed to solve a particular equation (in this case, the Davis equation for Most Economic Purchase Lot). The nomograph is a custom-made device, and is only applicable to the equation for which it was made.

2. For each of the factors, a certain anticipated range of values was predetermined. This range for each variable will vary from concern to concern. In the present example, B (storage space) was expected to range from 0.2 to 50 square feet per item; E (annual storage charge) was expected to range from \$4 to \$20 per square foot. It is best practice to determine and provide for the complete range of anticipated values. Proportional calculations can be made using more limited scales, by shifting decimal points, but this loses the value and convenience of direct reading of the answers, since corresponding decimal adjustments will have to be made and the chance for error is greatly increased.

3. Designing a nomograph is worthwhile only if the computations for which it is made are repeated frequently.

4. A nomograph for the solving of a particular equation can take many

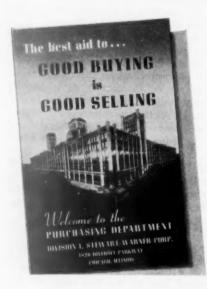
forms. The one shown here is only one possibility. It was selected because of the ease with which it can be solved.

While this discussion has been restricted to the determination of "most economical purchase quantity", it should be noted that the technique is not limited to this purpose. Nomographs can be designed and used for solving many other equations and formulas that must be solved repeatedly in an industrial organization.

It should also be noted that there is no formula that can wholly take the place of purchasing judgment in the handling of the various intangibles that sometimes come into play in determining the standard ordering quantity or in handling the special situations where exceptions to the general rule may be necessary or desirable.

However, if your department is using a formula for some of these repetitive determinations, or is considering the use of such a formula, it will be worthwhile to consider also the designing of a nomograph to aid in their rapid solution.

### A Code for Buying and Selling



THE welcome folder distributed to visiting salesmen at the Division 1 purchasing office of Stewart-Warner Corporation, Chicago, is more than a routine greeting; it's a brief, simple, and highly effective primer on the subject of purchasing-sales cooperation, specifically applied to the S-W operation.

The greeting is there, on the front page of the folder, and it's a sincere one. But the more prominent caption is the statement that sets the keynote of the business relationship: "The best aid to Good Buying is Good Selling." That immediately sets up a two-way responsibility.

And what constitutes good buying and good selling? The answer is on the back page:

#### Our Buyers' Code

We believe that the function of purchasing is of primary importance to a manufacturer, since the procurement of materials, components and services must precede the making and marketing of the product. With this clearly in mind, the members of the Purchasing Department of Stewart-Warner Corporation have bound themselves to abide by the following principles of conduct and business ethics:

1. To conduct their business on a high level of honesty and integrity.

To purchase products of specified quality at fair but competitive prices. To accord courteous and friendly treatment to all who offer us their goods and services.

4. To strive to establish a relationship of mutual confidence and understanding between the buyer and seller.

5. To remain loyal to suppliers who

have demonstrated their reliability.

We believe that adherence to these principles by us should create, in our suppliers:

A feeling of partnership in our operations.

A desire to participate in improving our products.

A sustained effort to effect economies. A permanent relationship of mutual benefit.

The inside spread of the folder shows sixteen small photographs of key buying personnel, listing the products that each one buys. The heading again suggests the theme of good buying—and selling. "Meet the members of our Purchasing Department," it says. "They're always looking for better equipment . . . better materials . . . better methods and services."

Buying at
United States Steel

Take away all our money, our great works, ore mines and coke ovens but leave our organization, and in a few years I shall have re-established myself—Andrew Carnegie

By Paul V. Farrell and Dean S. Ammer

WHEN Andrew Carnegie sold his great holdings for \$400 million in 1901 the most valuable part of the deal couldn't be measured in dollars.

Along with the mills, mines and railroads, he turned over to the budding United States Steel Corporation the intangible that kept his whole industrial empire operating—his organization. What he thought of that organization—of the people whose brains and hearts made it successful—is shown in the bold statement of confidence above, made a few years before he retired.

You feel that spirit of reliance on the human ele-

ment everywhere in U.S. Steel today. The corporation has tripled its productive capacity since 1901, making it one of the largest corporations in the country, yet the emphasis is still on the individual employee. He is encouraged to develop his talents to the fullest, then coordinate them with those of the organization team.

The practical application of this principle is nowhere more evident than in U. S. Steel's purchasing organization. From top managment—where purchasing holds a vice-presidency—down to each of the buyers, there's an awareness that an important job

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# ... 40,000 Commodities Bought from 50,000 Suppliers ...

can be done only by strong, capable individuals. With a group spending well over a billion dollars a year—40% of the corporation's sales dollar—you can't take chances with "rubber stamps."

Buying on such a scale demands that important decisions be made. And the people doing it are given authority commensurate with their responsibility, with backing at every level of management. What it comes down to is that buying at U.S. Steel is a big job, and U.S. Steel buyers are big people. In discussions on much of the staff work covered in this article, for example, it was always made clear that "the buyer is the important man." Unless an activity or decision helps him to do a better buying job, purchasing wants no part of it.

Another concept, tied directly in with confidence in the individual, has been a great source of strength to U.S. Steel's purchasing. It's best summed up as "There's nothing so constant as change." By helping to develop the great purchasing values of initiative imagination throughout its organization the department has reaped a harvest of new ideas, new and better ways of doing a job. Purchasing management, backed by corporation management, has moved frankly and open-mindedly to adapt itself to new situations and new demands, scrapping tradition where it stood in the way of progress.

A quick review of recent significant changes in U.S. Steel's internal corporate structure shows how its present purchasing organization was developed to best serve the needs of the corporation.

Recent new developments in the United States Steel Corporation's buying organization have aroused wide interest in the business world. This report, prepared by PURCHAS-ING's editors in close cooperation with U.S. Steel's purchasing officials, is the first comprehensive study of the company's purchasing policies and procedures. It reveals significant advances in procurement techniques that can be adapted to all kinds of purchasing departments, whether large or small.

The changes were designed to simplify the corporate structure, cut costs, and improve production. The first move, in December 1950, brought four wholly-owned subsidiaries into a single, wholly-owned operating company, called the United States Steel Company. The subsidiaries had been the United States Steel Corporation of Delaware, Carnegie-Illinois Steel Corporation, H. C. Frick Coke Company and United States Coal and Coke Company.

A year later, a number of subsidiaries became general operating divisions of the new United States Steel Company. American Steel and Wire Company, for example, became American Steel and Wire Division, United States Steel Company.

At the end of 1952, the United States Steel Com-

#### SALES. COSTS AND INCOME IN 1954

	Total Dollars in millions	Dollars per employe*	Dollars per manhour*
Receipts from customers—the public	\$3,250.4	\$12,357	\$6.66
Disposed of as follows:	,		
Employment costs†-U. S. Steel's direct employment	1,387.0	5,273	2.84
Products and services bought—Provides employment by suppliers and by their suppliers in turn	1,134.3	4,312	2.32
Wear and exhaustion—Provides employment by suppliers of new plants and equipment and by their suppliers in turn	261.8	995	.54
Taxes—Provides revenue for governments	266.7	1,014	.55
Interest—Compensation for savings loaned	5.2	20	.01
Dividends—Compensation for savings invested	110.7	421	.23
Income reinvested in business	84.7	322	.17
Total	\$3,250.4	\$12,357	\$6.66

\*Excluding employes (1.9 per cent of total) the cost of whose work was charged to construction. †Including social security taxes, pensions, insurance and other employe benefit costs.

pany was merged into the United States Steel Corporation, which thus became primarily an operating company directly engaged in the production and distribution of steel and related activities.

Based on these changes, U.S. Steel's purchasing today is a combination of centralized and decen-

tralized operation.

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A major portion of the buying is handled by the purchasing group in the corporation's general offices in Pittsburgh. This is buying headquarters for the bulk of the corporation's steel producing facilities. In addition, the department handles some purchasing for the National Tube Division and the American Bridge Division, also located in Pittsburgh. The identity of these divisions, however, is retained on all transactions and each maintains its own purchasing organization to handle the considerable amount of construction and sub-contract work placed with outsiders.

Purchasing is decentralized to the extent of having individual purchasing departments for each of the operating divisions and associated subsidiaries. (Purchasing officers of these units and their locations are shown on an accompanying list.) They report directly to the respective presidents of their divisions.

Consolidation of seven individual purchasing activities at Pittsburgh under the corporation reorganization has brought about a number of improvements. Greater use of specialized buying knowledge and skill has made procurement more efficient and economical. Terms and conditions of purchase are now uniform throughout the corporation. A standard form of construction contract has been developed in cooperation with the legal, engineering and accounting departments. General terms and conditions incident to purchases of installed equipment at the corporation's various plants have been developed.

#### Other Companies Helped

During consideration of the various purchasing "systems" that might be applicable to the new corporate set-up, no opportunities to get help from within or without the corporation were passed up. Complete surveys of all aspects of purchasing's work were made. The industrial engineering and procedures departments were asked for and gave considerable help. General superintendents and other interested plant people were consulted regularly to determine how purchasing could improve its service to them.

Three USS purchasing officials-Ralph C. Moffitt, Director of Purchases; Chester H. Baringer, Assistant Director of Purchases; and J. F. Dailey, Director of Purchases of the National Tube Division, visited the purchasing departments of a number of the leading industrial firms in the country. When the U.S. Steel purchasing organization finally reached its present form it could not be said to be molded after any existing organization. The nature of its buying job, the unique position of the corporation, and other factors, required a "tailor-made" department. Yet the three men, readily acknowledge that the trip was fruitful in ideas, and express appreciation of all the assistance and cooperation given them by their fellow purchasing men in other companies.



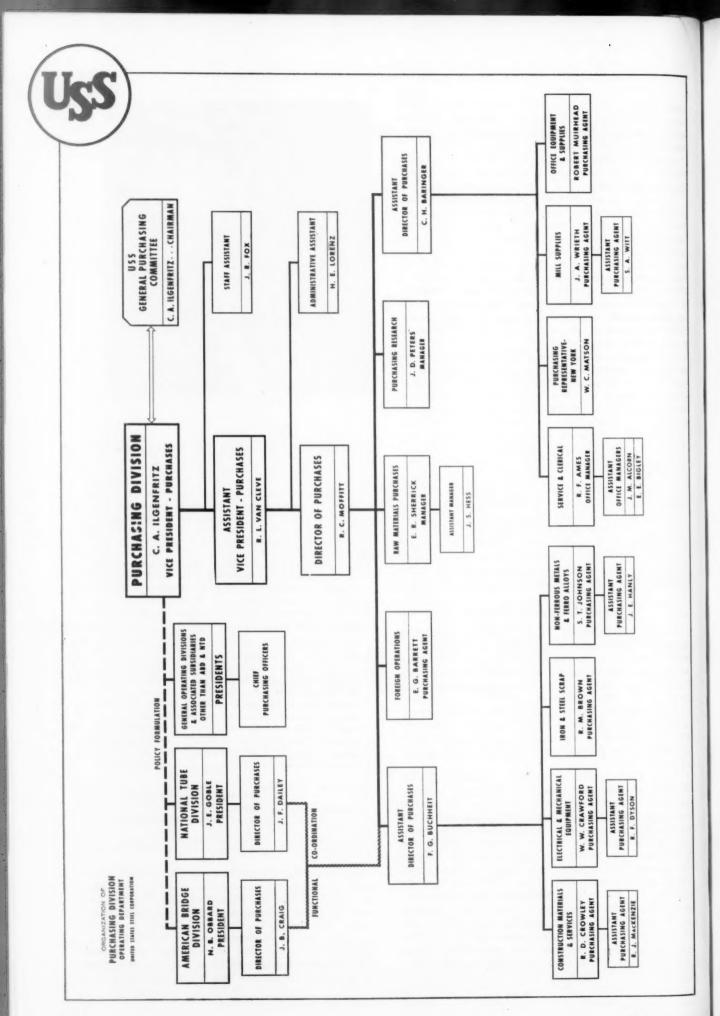
#### A Major Function of Management

Literally almost everything produced by man or by nature is used at some time in the mills, mines, laboratories and offices of United States Steel. We buy in the neighborhood of 40,000 different commodities which are supplied by approximately 50,000 vendors. These goods and services are purchased all over the world and last year were well in excess of one billion dollars in value. Naturally, we consider this great job of purchasing to be one of the major functions of management, requiring expert leadership supported by a well organized and efficiently operated purchasing department, staffed with specially trained and experienced personnel.

Also, important as the purchasing function is, we in U.S. Steel look to our purchasing department to do more than the actual buying of goods and services. Their knowledge of world affairs gained from purchasing materials in many parts of the globes helps to keep us informed on international supply situations. In addition, through their contacts, our operating people depend on our buyers to keep them informed of the development of new commodities and equipment. With these responsibilities, we consider that our financial success is in no small measure dependent on the initiative, judgment and efficiency of our purchasing department.

Benjamin F. Fairless
Chairman
United States Steel Corporation

Just as the "new" company has kept United States Steel as up-to-date as possible in today's economy, its "new" purchasing department has moved forward on basic policies, principles and philosophies. From the top down, the department knows its strengths and its weaknesses and is constantly trying to improve the first and eliminate the second. The receptiveness to new ideas, the encouragement of differences of opinion both above and below, and



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the emphasis on youthful, aggressive thinking, are more than pious statements designed only to impress the public. They are a living set of principles that could be seen in action daily in conferences, buyers' meetings, and the day-to-day relationships of individuals in the department observed during preparation of this article.

What U. S. Steel demands from its personnel, and is getting through a policy of individual encouragement, was explained in a report to top management in Mr. Ilgenfritz' description of what buying for

the corporation entails:

"Each transaction is different and requires intelligent and discriminating evaluation, the balancing of many considerations, utmost discretion and sound commercial judgment including a keen sense of values. These requirements demand a competent organization comprising people who think, plan, and have an objective, and possess creative ingenuity and who are commercial experts and specialists in their particular assignment."

That's a large assignment. And U.S. Steel's purchasing leaders help the individual by doing the best job they can in training and selection—then it's up to him. This is how R. L. Van Cleve, Assistant Vice President—Purchases, wrapped up the official attitude toward the corporation's purchasing task and the people chosen to carry it out: "We want no little men rattling around in big jobs."

# Departmental Organization

About 600 people, located in 24 major points in various parts of the country, carry out U.S. Steel's buying. They purchase about 40,000 different commodities from approximately 50,000 suppliers and spend somewhere between \$4 and \$5 million each working day. Included in this total are 57 different commodities originating in 39 foreign countries.

As shown on the accompanying organization chart, this tremendous organization is headed by the Vice President—Purchases, and his staff, at Pittsburgh. He has the obligation to supply approved policies to all the chief purchasing officers of the corporation and to insure their compliance with the policies.

In the formulation of policy, the Vice President-Purchases has the advice of the corporation's General Purchasing Committee, of which he is chairman. In addition, the group includes Assistant Vice President-Purchases, R. L. Van Cleve; the Director of Purchases, R. C. Moffitt; the Administrative Assistant, H. E. Lorenz; the Manager of Purchasing Research; J. D. Peters; the Staff Assistant to the Vice President, J. R. Fox; and the chief purchasing officers of the general operating divisions and associated subsidiaries. This committee meets periodically at Pittsburgh.

Although the various operating divisions and associated subsidiaries do practically all of their own buying, there are exceptions. This is where the flexibility of U. S. Steel's purchasing shows up. To get the advantages of bulk buying and to prevent competitive purchasing between two or more divisions on an item, certain commodities for the entire corporation are bought centrally by one designated chief

purchasing officer.



Today the purchasing department is regarded as a vital part of overall management, a qualified balance wheel on business expenditure. Management should never let itself, consciously or otherwise, minimize the profound influence on the success of the company's operation which is exerted by the purchasing department. This is apparent immediately to anyone who realizes that the purchase of materials and services represents more than one half of the manufacturing dollar.

Clifford F. Hood President United States Steel Corporation

Since the largest of the buying units is located in Pittsburgh, it is used here as an illustration of how the purchasing function operates and how certain practices have been developed to accomplish the desired results.

#### 200 Buy A Billion

Purchasing at Pittsburgh—to the tune of about a billion dollars a year—is done with the relatively small force of about 200. Director of Purchases Moffitt heads a seasoned staff of purchasing agents and buyers assigned as follows:

Assistant Director of Purchases F. G. Buchheit administers the Construction Materials and Services; Electrical and Mechanical Equipment; Iron and Steel Scrap; and Non-Ferrous Metals Sections. Assistant Director of Purchases C. H. Baringer heads the Chemicals; Ferro-Alloys and Oils; Mill Supplies; Office Equipment and Supplies Sections.

Also on the staff of the Director of Purchases are the Manager of Raw Materials Purchases, E. R. Sherrick, and the Manager of Purchasing Research, J. D. Peters.

# Construction Materials and Services

This section, in charge of Purchasing Agent R. D. Crowley, and Assistant Purchasing Agent R. J. MacKenzie, purchases a wide range of construction, building materials, engineering services, brick, furnaces, and numerous supplies and services incident

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Carl A. Ilgenfritz

Vice President—Purchases

In his 45-year association with the steel industry, Mr. Ilgenfritz has spent the greatest part of the time in purchasing. He held top purchasing posts with such companies as United Alloy Steel Corporation, Central Alloy Steel Corporation, and Republic Steel Corporation. He became Director of Purchases for Republic in 1930, and was made Manager of Purchases and Raw Materials in 1933.

Mr. Ilgenfritz joined Carnegie-Illinois Steel Corporation, subsidiary of United States Steel, in 1945 as Vice President in Charge of Purchases. In 1946, he was elected Vice President—Purchases of United States Steel Corporation of Delaware. He retained his position with the United States Steel Corporation of the United States Steel Corporation of States Steel Corporation of the S

He has acted as adviser to the Federal Bureau of Supply, also served on the original Hoover Commission on Organization of the Executive Branch of the Government, and is now a member of the Procurement Task Force Committee of the current Hoover Commission. He was a representative at the World Tin Conference in London in 1946 and has subsequently served as industry adviser to the State Department at meetings of the International Tin Study Group. He also served on several Munitions Board industry advisory committees. During World War II he served on several industry advisory committees of the War Production Board. For many years, Mr. Ilgenfritz has served with distinction on important committees of the American Iron and Steel Institute and the National Association of Purchasing Agents.

technical aspects. Every effort is made to get all acceptable bids on a truly comparable basis. A contract is awarded by purchasing after consideration of all factors involved.

What factors—in addition to plant recommendations—does purchasing consider in selecting the supplier? An important one is the bidder's financial responsibility.

Another big factor in contract awards is price. Prices are reviewed item by item with the bidder to make certain that no errors have been made and that no opportunities for cost reductions have been

Purchasing is responsible for all other phases, and therefore carefully reviews all bids from other than

overlooked.

If the price is right and the bidder approved, it is U. S. Steel's policy to show preference to local sources. It not only aids good community relations but often insures that a local contractor will give the job closer supervision. A variety of contracts is used. Economic conditions and the size and nature of the job are the main factors in determining the type of contract awarded.

Once the order is issued, purchasing tries to let the contractor operate as much as possible on his own initiative on sub-contracts and purchase of

necessary materials.

Most follow-up work is done by engineering. Purchasing, however, still closely controls the purse strings. All price changes are handled by the buyer. Verbal orders for running changes in specifications by plant personnel are forbidden. All changes to incorporate features not anticipated in the original planning must be passed, in writing, to the purchasing department, which then negotiates the new price.

#### **Refractories Present Problems**

Buying of refractories, a major item, illustrates some of the problems faced in this section.

U. S. Steel buys numerous types of brick (e.g. for lining blast furnaces, open hearths, electric furnaces, ladles) according to specification. Various types of firebrick are evaluated periodically by ASTM standard tests or special U. S. Steel tests conducted by the Research and Technology Division, which also interprets the test data and recommends specifications

to the erection and maintenance of various facilities. In addition to construction lumber, it also buys a large amount of wood products for packaging.

Mr. Crowley, whose 18-year office boy-to purchasing agent career with U. S. Steel is a refreshing indication of advancement opportunities in this large corporation, has a staff of seven buyers.

As soon as purchasing receives a requisition for a construction project, it is reviewed to make certain that specifications are not preclusive.

Any proposals embodying unique or novel suggestions are held in strictest confidence so that bidders cannot unfairly exploit ideas they did not originate.

Plant engineers review the bids and make recommendations based on their technical analyses

#### Electrical and Mechanical Equipment

Approximately 1800 orders a week, covering hundreds of items from a \$5,000,000 annealing system down to relatively minor electrical and mechanical maintenance items, are issued from this department. W. W. Crawford, who started with the corporation as a trainee in the open hearth department in 1946,

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heads the 16 buyers in the section. Assistant Purchasing Agent is R. F. Dyson.

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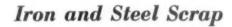
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Most orders issued in this section are of the conventional quantity types, based on individual requisitions. But on a number of items used by several plants in central operations—carbon brushes, for example—blanket orders are used. By estimating overall usage, negotiating prices, and issuing blanket orders, considerable savings have been achieved.

Purchase of capital equipment—large machinery, special system installations, etc.—involves generally the same procedures as used in the Construction Materials and Services section. After receiving specifications, purchasing reviews them and asks for bids from a number of suppliers. Bids are reviewed by purchasing, and plant personnel provide technical assistance. Alternate proposals are encouraged by purchasing especially if it appears they will cut costs, facilitate competition, or improve the product. The final responsibility as to who gets the business is a purchasing responsibility. Purchasing, however, does confer with other interested departments before a final decision is made.



Scrap buying, peculiar to the steel industry, is, of course, an operation quite distinct from other phases of industrial purchasing. Its importance to steelmaking, the nature of the market, the numerous fluctuations in prices, and the need for maintaining quality of the finished product, make it an extremely sensitive commodity.



Russell L. Van Cleve

After his graduation from Princeton in 1913 with a civil engineering degree, Mr. Van Cleve had wide experience in the operating and administrative departments of the Carnegie Steel Company. He was made Assistant Purchasing Agent, Pittsburgh District, Carnegie-Illinois Steel Corporation in 1935, Assistant General Purchasing Agent (in charge of Pittsburgh District) in 1940, General Purchasing Agent in 1945, and Director of Purchases in 1946. In 1951 he was named Assistant Vice President-Purchases, United States Steel Corporation.

Mr. Van Cleve served as a member of the National Committee on Education of the National Association of Purchasing Agents for two years, and is now chairman of its Development Committee on Intra-Company Activities. He is prominent in the field of purchasing education and has lectured at a number of colleges.

Constant contact and communication is a feature of U.S. Steel purchasing at all levels. Informally discussing purchasing plans in Mr. Ilgenfritz' office are, left to right, F. G. Buchheit, Assistant Director of Purchases; R. C. Moffitt, Director of Purchases; H. E.

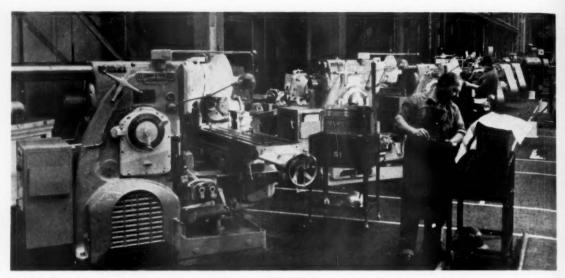
Lorenz, Administrative Assistant; C. A. Ilgenfritz, Vice President—Purchases; C. H. Baringer, Assistant Director of Purchases; J. D. Peters, Manager, Purchasing Research, and R. L. Van Cleve, Assistant Vice President—Purchases.



MAY, 1955

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Metalworking facilities of various U. S. Steel plants would be the envy of many good-sized manufacturing companies. This is the machine shop at the new Fairless Works.

Outside purchases of scrap for the entire corporation represent the largest single commodity expenditure by U. S. Steel. At Pittsburgh, this section is headed by R. M. Brown, who has had a variety of auditing and purchasing experience with the corporation. He has a staff of five buyers, one of whom is located in Chicago.

Purchasing, which is responsible for scrap inventory, gets estimated usages of various types monthly from operating personnel. After necessary data have been gathered, buying decisions are made and orders placed.

#### **A Volatile Commodity**

Because scrap is so essential to steel production, yet changes so often and so quickly in price, it poses some nice purchasing problems that require keen judgment and fast decisions. Large purchases in a falling market could be made too soon to take full advantage of price trends. On the other hand, overconservative buying policy in a rising market could endanger steel production and force accelerated buying at higher levels.

During periods of scrap shortage, purchasing has had to keep very close watch on quality and delivery, which are adversely affected in confused market conditions. Alloy residuals creeping into scrap, even though ruled out by specifications, can cause trouble in open hearth heats, resulting in defective steel. Lagging shipments in a rising market can play hob with inventories and raise costs. Close cooperation between purchasing and operating personnel is maintained at all times to keep such difficulties at a minimum.

This group also handles the disposal of used machinery and equipment, salvage and reclamation and miscellaneous scrap not usable by U. S. Steel. Such materials are usually sold on a competitive bid basis to dealers. However, other using divisions are always

checked to see if they can make use of any salvage material or equipment before it is sold.

#### Non-Ferrous Metals and Ferro Alloys

The international flavor of some of U. S. Steel's purchasing begins to appear in this important buying section. The section not only buys metals from abroad, but also buys palm oil. Consequently, its buyers have become experts in the complexities of foreign trade.

These are the major commodities purchased by the section: tin, zinc and zinc concentrates, palm oil, aluminum, lead, and lead or tin base alloys. The section is headed by S. T. Johnson, a graduate metallurgist and former European representative for U. S. Steel Export Company.

The corporation is the world's largest producer of tinplate. Consequently, tin is an extremely important commodity dollar-wise. Purchase of the metal, the bulk of which comes from Malaya, makes it imperative for purchasing to stay constantly informed on international affairs, foreign exchange rates, and the statistical position of commodities. Purchasing's responsibilities extend beyond simply buying tin as required, at the prevailing market price. Control of inventory is largely a purchasing responsibility, although the view points of other interested departments are naturally considered in formulating inventory policy for this commodity.

To buy tin intelligently, a continuous study must be made of current and estimated world tin stocks and consumers must be estimated in relation to production and demand. Such analysis can yield clues to future price movements. Government stock piling policies and international political developments are also strong price influences. The tin buyer, in addi-

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tion to checking reports from the New York market, has to follow tin prices in Singapore and London, the two principal markets outside the United States.

#### **Questioning Requisitions**

Could a mill of the U. S. Steel Corporation possibly be doing a little sky writing on the side? That—in slightly exaggerated form—is an example of the type of question one unit of this section has to ask when reviewing requisitions.

That particular question concerned a request for titanium tetrachloride, one of the numerous chemicals bought for the corporation. Analyzing the request before placing the order, the buyer had the impression that this chemical was ordinarily used only for sky writing and laying smoke screens. In accordance with his responsibility as a buyer, he questioned the request and found that the material was to be used in testing blast furnace gas lines for leaks.

It's a small example, but it shows how U. S. Steel buyers are trained to question every requisition, and to either know or learn the "hows and whys" of everything they are buying. This same scientific approach is used with all the materials bought.

Mr. Johnson, Assistant Purchasing Agent J. E. Hanly, and the five buyers maintain constant contact with the metallurgical engineers, chemists at various installations, the chief lubricating engineer, and the corporation's industrial hygienist.

The last contact, somewhat unusual for purchasing, is extremely important. In the development and procurement of new materials, purchasing has to check with the hygienist to determine the toxicity of the products and the dangers, if any, they present to operating personnel. Typical of such coordination is the work going on in a program to develop the safest, yet most economical kinds of cleaners and degreasers for maintenance cleaning.



Ralph C. Moffit

On graduation from the School of Business Administration at the University of California, Mr. Moffitt joined the United States Steel organization in the purchasing department of Columbia Steel Company, San Francisco. In 1943 he was transferred to Provo, Utah as Purchasing Agent — Utah Operations. Two years later he came to Pittsburgh to handle the purchasing for Columbia Steel Company's expansion and reconversion programs in the far west. In 1947 he was appointed Assistant to Vice President-Purchases of the United States Steel Corporation of Delaware. In 1951 he was named Director of Purchases of United States Steel Company, and in 1953 Director of Purchases of the United States Steel Corporation. He is an active member of the National Association of Purchasing Agents.

#### Standing Orders

U. S. Steel uses standing orders as much as practicable. The prime reason is to reduce the amount of paper in the form of purchase requisitions flowing to the Purchasing Division. As a result of the reduction number of orders, costs are reduced and the handling of the ordering locations' needs are expedited. Approximately 5,000 were in effect during 1954. They cover materials or services.

#### In the body of the order, one of the following statements is inserted:

- When both specific quantities and delivery dates are known: "(quantity and Unit) of (commodity) to be delivered (delivery date).
  - This order is subject to increase, decrease, or cancellation at our option."
- 2. When either the exact quantities or delivery dates are unknown:
  - "Such quantities of (specific commodity) as released from (start of effective period) to (end of effective period) or

until notification of cancellation prior to (end of effective period.)"

#### In addition, the order carries this stipulation:

"Deliveries on this order are to be made only to the Works designated on the face of this order and only upon receipt of release from United States Steel Corporation."

Such orders are for a period of one year — generally January 1 to December 31. With a few exceptions, releases are made to the vendor by the ordering location.

#### A few typical commodities covered by these orders are:

Lubricating Oils and Greases Welding Electrodes Equipment Spare Parts

Motor Repairs Miscellaneous Hardware Castings, Machining Goggles

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A unique telephone answering service for U.S. steel buyers has eliminated a lot of confusion. If a buyer is listed as not in for the day, his calls are switched to one of two young men in the office.

They are equipped to answer callers' questions intelligently. They also

receive these calls when buyers who are in fail to answer in three rings. The information developed in the calls is then routed to the buyers. The mail boy picks up call information five times daily, so there is little delay in transmitting it to the buyer. This method has saved the cost of installing a private switchboard for purchasing.

#### Raw Materials

Procurement of the enormous tonnages of raw materials needed by U. S. Steel for its great production covers many activities and responsibilities that go beyond the buying function itself. It involves coordinating both the production of the corporation's own facilities and the purchasing of large amounts of material from the outside.

An indication of the vastness and importance of various raw materials to the making of steel is this breakdown: to produce one ton of pig iron, an integrated steel mill must feed into its average blast furnace about 1.7 tons of iron ore, almost a ton of coke, and 4/10 of a ton of limestone and dolomite—a total of 3.06 tons. In addition, steel production requires fluorspar, chrome ore, and ferro-manganese.

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Responsibility for obtaining these materials rests with E. R. Sherrick, Manager of Raw Materials Purchases, a veteran of 42 years with the corporation, most of it in close association with operating people. He is assisted by Assistant Manager of Raw Materials J. S. Hess, and three buyers.

The magnitude and complexity of the job are well illustrated in coal procurement. Despite the fact that U. S. Steel is one of the largest producers of coal in the country, that commodity is second only to iron and steel scrap in volume of purchases.

This section maintains constant contact with the mills on coal needs and with mine managers on their ability to produce. In buying coal, it is very important that purchasing work closely with traffic on patterns and methods of distribution. In addition, forecasts of requirements and continuous exchange of information with operating personnel is essential. Mr. Sherrick's long experience and intimate acquaintance with operating people keep this important liaison operating efficiently with a minimum of formality.

Many raw materials such as special iron ores and most manganese ores are purchased abroad. These purchases involve the same types of problems in foreign trade as those previously discussed in the Non-Ferrous Metals and Ferro Alloys Section.

Weekly meetings in the conference room at Pittsburgh keep the purchasing staff mutually informed on ideas, problems, and policies. Left to right are Harry E. Lorenz, Administrative Assistant; John A. Wrieth, Purchasing Agent, Mill Supplies; Stanley T. Johnson, Purchasing Agent, Non-Ferrous Metals and Ferro Alloys; William W. Crawford, Purchasing Agent, Electrical and Mechanical Equipment; Robert F. Ames, Office Manager; Richard

D. Crowley, Purchasing Agent, Construction Materials and Services; F. G. Buchheit, Assistant Director of Purchases; R. C. Moffitt, Director of Purchases; C. H. Baringer, Assistant Director of Purchases; R. M. Brown, Purchasing Agent, Iron and Steel Scrap; John R. Fox, Staff Assistant; R. Muirhead, Purchasing Agent, Office Equipment and Supplies; E. R. Sherrick, Manager, Raw Materials Purchases; and J. D. Peters, Manager, Purchasing Research.



#### Mill Supplies

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The "heaviest" of U. S. Steel's buying groups in terms of orders placed is the Mill Supplies Section. Led by Purchasing Agent J. A. Wrieth and Assistant Purchasing Agent S. A. Witt, a staff of 12 buyers has the responsibility for obtaining over 2500 separate mill items.

An unexpected type of buying for the greatest steel producer in the world takes place in this section—steel buying. One buyer's job—almost exclusively—is purchasing specialty maintenance steel from the outside when it is not available from the corporation's own facilities. Among the steels bought from outside sources are tool steels, bars, all types of shapes, pipe, and tubing.

#### Paints Being Studied

A typical project handled by this section is the paint program now in operation. A paint subcommittee, composed of maintenance, operating and purchasing personnel has set out to simplify and standardize the various types of paint used. At the Clairton coke works a paint testing station has been established. At this tough proving ground, testing panels have been set up. Various types of paint are also being tried on stacks and other exposed places.

While these paints are being tested under field conditions, purchasing, in cooperation with all paint suppliers, is studying specifications, in conjunction with the physical tests. At the conclusion of the tests, it is expected that complete specifications can be set up for all paints required.

One of Mr. Wrieth's more unusual duties is the review of all contracts for in-plant feeding. Although the operation is run by an outside organization, he establishes the prices on various foods and service. The company servicing the plant cafeterias issues purchase orders to vendors they have selected, but all terms, escalator clauses, etc. are subject to Mr. Wrieth's approval.

## Office Equipment And Supplies

You don't have to get too far on a trip through U. S. Steel's purchasing department to realize there's an amazingly small amount of paperwork for such a large organization. But there is still a big need for forms and a host of other office items.

The Office Equipment and Supplies section, headed by another veteran U. S. Steel employee, Robert Muirhead, has the responsibility for obtaining all these items for central operations, American Bridge, and National Tube, and some of them for all divisions. He and his staff of 6 buyers procure over 435 different forms and miscellaneous printed and paper items, and purchase (or rent) all kinds of equipment from pencils to giant electronic "brains."

On general forms, this department sends out regular inquiries to the mills as to their requirements for a specified period. The mills are told that requisi-

tions are to be sent to purchasing within a given time. When the requisitions have been received, they are "corralled"—so that a total over-all requirement figure is obtained—and requests for quotations are issued for the entire order. The procedures department is regularly consulted on "corralled" items before orders are placed to see if there are any changes they wish to make in the form.

Office equipment and supply buyers, unlike buyers in other sections, maintain purchase record cards on commodities because they deal generally with a wider variety of possible sources.

This section also buys packaging paper, corrugated board, and kraft paper for interleaving stainless steel as it goes through the mill.

#### Foreign Requirements

There has been recently organized at Pittsburgh a small staff to purchase materials required by U. S. Steel's foreign operations. A separate activity was established due to the specialized nature of this work. The group is headed by E. G. Barrett.

Special marketing skills and knowledge of local conditions of divisional and subsidiary purchasing officers is used to good advantage by the corporation through semi-monthly reports on business conditions. These are consolidated at purchasing head-quarters in Pittsburgh and distributed to interested parties in the corporation.

	Vice President-Purchases Bate Prepared United States Steel Corporation 555 William Fenn Place Pittsburgh 30, Pennsylvania
	PURCHASING AGENT'S MONTHLY REPORT
•	GENERAL SUSDESS CONDITIONS IN OUR DISTRICT Hether than month ago Remarks (Explain fully): Same as month ago Worse than month ago
	COMMODITY PRICES  Higher than south ago Same as month ago Lower than month ago  In the next six months:
	SPECIFIC PRICE CHANGES on Goods and Services which we purchase in Significant Dollar Volume:  ITEM PREFICUS CURRENT REASON FOR CHANGE
	TIPMS IN SHORT SUPPLY (Mention recent or expected changes in your area and reasons for change);  BUTING FOLICT (State if hand-to-mouth, 1,2,3,6 or 9 months, etc.; mention factors which
	Charge)s_
5.	change):  EVIIMO FOLICY (State if hand-to-mouth, 1,2,3,6 or 9 months, etc.; mention factors which determine your policy):
5.	Change):  SUTIBO FOLICY (State if hand-to-mouth, 1,2,3,6 or 9 months, etc.; mention factors which determine your policy):
5e 6.	CENERAL REMARKS (Including your opinion on conditions which affect purchasing policies.



### **Purchasing Research**

U. S. Steel management knows what good purchasing can do for the profit position of a modern company. By giving its buying personnel status and responsibility, it has sought and receives the imaginative analytical type of purchasing that cuts costs and increases operating efficiency.

But management knows also that careful, critical buying has competitors for time and attention in the form of interviews, negotiation and a number of other

matters necessary to the buyer's job.

That, in brief, is the chief reason behind U. S. Steel's creation of the position of Manager of Purchasing Research—a move that has aroused wide interest in the purchasing field. Purchasing Research, then, is a staff service for both purchasing management and personnel engaged in actual buying.

Officially, the scope of the Purchasing Research

manager's position is defined thus:

"Co-ordinates and directs activities of the Purchasing Division concerned with increasing efficiency of purchasing operations and obtaining maximum potential effect of each dollar expended for purchased goods and services, through planning and program development, commercial and product research, and value analysis of purchased acquisitions." The duties that flow from this definition are shown in the accompanying list on page 93.

It all adds up to a potentially tremendous and highly important job. But definitions and statements of policy don't always get the job done. You can get a good idea, however, of how this less-than-threeyear-old activity is really moving at U. S. Steel when you look into Purchasing Research Manager J. D. Peters' "project file."

A handful of such projects, lifted out at random and spread on the desk, gives an idea of what Purchasing Research is doing and where it is going:

Buyer savings reports on purchased commodities; proposed designs for reports to management; new methods of commitment and inventory control; programs for trial ordering and testing of various equip-

"We are on a daily diet of cost reduction"

Clifford F. Hood
President
United States Steel Corporation

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ment and materials; special studies on commodities, involving analysis of price and current and long term market conditions; changes in specifications; standardization programs; disposal of surplus new materials.

The outside observer has to guard against certain impressions in the face of this somewhat bewildering



U. S. Steel buyers purchase an extraordinarily wide range of industrial equipment, from pipe mills to valves. Here is action in the No. 1 continuous butt weld pipe mill at the new Fairless works of National Tube Division.

array of projects. One is that Purchasing Research is some kind of an omnipotent body issuing decrees downward and looking over the buyer's shoulder to see that he complies. The other is that it is a dumping ground for jobs or ideas that are being shifted from their proper areas. Both impressions are wrong.

Purchasing Research is simply the focal point for ideas that will get the maximum value from purchases, either through cost reduction or increased efficiency. These ideas can be, and are, generated at every level of purchasing, and in operating depart-

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ments. The ideas must, of course, have some relation to purchasing and its goal of more effective buying. Whether he's suggesting that a lumber buyer attend a university lumber grading course (he heard about it from an operating man who took the course as a

it from an operating man who took the course as a hobby), or studying wider use of a \$16,000 track cleaning machine that has already saved one division \$25,000 in a year, Mr. Peters views himself as a "catalyst." His job is to draw in ideas, and help move them on to cost-saving realities.

### Duties of the Manager of Purchasing Research

#### Planning and Program Development

- Designs and institutes programs for the evaluation of the performance of procurement duties.
- Analyzes operations of the Purchasing Division and prepares studies of improved techniques, systems, and controls.
- Contacts purchasing executives of other companies to ascertain methods employed in executing procurement responsibilities, and determines applicability of such methods to United States Steel.
- Develops methods of performing operations incidental to actual procurement, for the purpose of increased efficiency and reduction in administrative expenses.
- Designs and administers Savings Objective Program of the Purchasing Division.
- Reviews, interprets, and controls development of statistical reports and information required by the Purchasing Division.
- 7. Is responsible for the co-ordination of information on the acquisition and delivery of major purchase requirements with consumption rate and standard inventory levels to maintain proper balance of procurement with availability of requirements.
- Represents the Purchasing Division in development of programs concerned with disposal of surplus and waste purchased materials, including salvage activities.
- Provides staff services to Chief Purchasing Officers of other General Operating Divisions and Associated Subsidiaries on request of the Director of Purchases.

#### Commercial Research

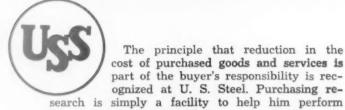
10. Evaluates course of supply of purchased goods and services in terms of vendor performance, facilities and capacity to produce, financial standing and commercial significance by reviewing publications, industry reports and vendor statements, by co-ordinating information concerning suppliers from other Corporation departments with such information from the Purchasing Division, and by direct contact with suppliers and visitations to their plants. Also assists in the development of new sources of supply for purchased commodities.

- Ascertains and investigates new products and materials introduced on the market and determines the possibility of satisfying procurement needs more effectively or more efficiently with such products or materials.
- Analyzes and interprets trends of business in general and supply-demand relationship of specific purchased commodities.
- Analyzes prices of purchased commodities in terms of market conditions and cost of production.
- 14. Prepares long-range economic studies concerning major purchased commodities to assist in resolution of procurement policy. Such studies involve contacts with suppliers, industry associations and governmental agencies.

#### Value Analysis

- 15. Designs, establishes, and develops on behalf of the Purchasing Division, programs and projects concerned with evaluating the quality of purchased commodities, including considerations of standardization, specifications, substitution, inspection, and testing of such commodities. Co-ordinates commercial considerations of Purchasing Division with considerations of other Corporation departments regarding the use of purchased commodities to obtain maximum economic advantage through the purchasing function.
- 16. Is responsible for development and execution of projects in the Purchasing Division concerned with obtaining greater value in purchased goods and services through analysis of product design, packaging, transportation, manufacturing methods, and materials handling. Contacts sales and operating executives of suppliers and industry and trade associations, and works with executives of other Corporation departments in performance of these functions.
- Co-ordinates exchange of Purchasing Research information among Purchasing Divisions of General Operating Divisions and Associated Subsidiaries.

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this phase of his responsibility more effectively. As Mr. Peters puts it: "The buyer is the key man."
All buyer savings—whether involving Purchasing

All buyer savings—whether involving Purchasing Research or not—are considered part of the Dollar Savings Objective program at U. S. Steel, a planned effort to reduce expenditures for purchased goods and services. Purchasing Research has the responsibility for designing and administering this program, and the Buyer Reports of Savings which are an important phase of it.

These Reports of Savings are designed both to evaluate a buyer's performance and to bring to management's attention what Director of Purchase Moffitt describes as a "very important aspect of purchasing's responsibilities."

## Case Histories Dollar Savings Program

#### Purchase Instead of Rental: Savings \$15,711

A works order covering rental of a ¾ yard shavel for 6 months, at a fair and equitable rate, was analyzed by the buyer. He decided to investigate a rental-purchase agreement for this type of equipment. Through investigation and negotiation it was found that the corporation could save about \$3,000 per month, for 6 months, through a plan that offered lower rental and permitted the purchase of the machine at any time, all rental charges being applied to the purchase price. However, as a result of purchasing's action, and with agreement of the engineering and operating departments, it was decided to buy the machine outright, rather than on a rental basis.

By the steps taken in purchasing, at least a 6 months' rental charge was obviated, and the difference between the total rental charges (\$73,632) and the purchase price plus operating and maintenance costs (\$57,921) a cost reduction of \$15,711 was achieved.

#### Change in Drills Saves \$7,905

Purchasing suggested to one plant using a number of drills that a regular high speed taper shank drill might be used in place of the Type A beaded drill at a saving in price. Arrangements were made for a trial of high speed drills, which proved entirely satisfactory. Replacing Type A standard length drills, beaded shanks, with standard length No. 310 high speed taper shank drills saved \$6,328.27 in one year. Replacing 18" O/A length #100 Type A drill with 16" flute type A #100 saved \$1,178.32 in a year. Replacing 24" length #100 Type A drill with 23" flute, Type A #100 saved \$398.30 in a year. Total annual savings: \$7,904.89.

	PD 53-FD				
REPORT OF SAVINGS					
II. Savings in Expenditures for Purchased Goods	and Services				
B. Form of Report					
To: F. C. Moffitt, Director of Purchases	Report Number:				
Date:	Buyer;				
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a. Commodity:	- Andrews				
<ul> <li>b. Order or contract identification</li> <li>(1) Date of issuance:</li> <li>(2) Number of order or contracting</li> </ul>	Darty:				
c. Location for which purchase was made:					
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2. Evaluation of savings (attach any computation					
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#### Larger Orders, Lower Prices: Savings \$2,430

Cutter chain bits, bought for one of the corporation's mines, had been bought in small lots at \$1.33 each. By making a commitment of 25,000 units for consumption within 12 months, a price reduction of \$.09 per unit was obtained. On the first order, for 27,000 units, savings were \$2,430. Consumption is expected to exceed 25,000 units per year when all new mining machines are in operation and may reach 100,000 for all mines. A further price reduction may be effected when this point is reached.

### Bulk Substituted for Bag Material: \$5,145 Saved

Purchasing, with the cooperation of the vendor and the industrial engineering department, arranged for the substitution of bulk soda ash for bagged material. Suction unloading equipment was already available, so no additional outlay was needed. Savings in the first year amounted to \$5,145. Additional plants are now being studied for possible application of the new method.



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## Case Histories Trial Order System

#### Bronze Bearings Wear Better, Cost Less

Acting on information obtained from a vendor, through purchasing, a Works requested a trial for a bronze bearing used in roll necks. The new bearing cost appproximately \$.17 less than the one in use. The trial was approved and tests were made. The new bearing was shown to give 10 to 50% more wear, and the indicated annual saving was \$8,078. The works general foreman, the buyer, and members of the maintenance committee approved the commodity.

#### Lubricants Changed: Estimated Saving \$4,000

Lubricant used on roll necks in one Works was satisfactory but price was considered high. A survey was made of available roll neck greases and one was selected for trial. Under test, it proved to have better "staying" properties, and was considered equal to or slightly better than the one in use. The new lubricant cost 8¾ cents per pound as against 12¾ cents per pound for the old. Estimated savings based on an annual consumption of 100,000 pounds amounted to \$4,000. The new commodity was approved by the Works lubrication engineer, the division superintendent of maintenance, the buyer, and members of the company maintenance committee.

#### Less Breakage, Longer Life for Small Tools

Impact wrench sockets used for tightening roof bolts and nuts at mines were not performing satisfactorily and breakage was causing definite safety hazards to operators. Another make tool was learned of through purchasing, and comparative tests were made. Exact records of number of bolts and nuts tightened before sockets broke or wore out were kept and periodic inspections and torque tests were made by mine and industrial engineering personnel. Despite the higher cost of the new socket (\$9.90 compared to \$9.00) its cost per one nut tightened was \$.0017, as against \$.0035 for the total then in use.

#### New Refractory Safer, Applied More Easily

Various firebrick shapes were being used for patching cover linings at a mill. Because of the extensive preparation needed for this operation soaking pit unit covers remained in service beyond the time they should have during full operation. This resulted in excessive damage to the steel frames. A new type of refractory material was learned of through purchasing. In thorough tests, it was found that the new "fireclay plastic refractory" was easily applied and thereby eliminated the excessive damage done to the structural steel of the cover previously. This increased protection more than offset the initial cost of the refractory, which was higher than that of the material in use.

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#### From a memorandum to Purchasing Agents and Buyers . . . .

It should be clearly understood that these reports of saving comprehend only one consideration of good purchasing—economy. There are other considerations such as quality, service and vendor relations that are more important to sound purchasing and should not be sacrificed for securing savings. We are anxious to develop cost-consciousness as a means of obtaining, rather than defeating, better purchasing.

Ralph C. Moffitt Director of Purchases exa und y wh

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Last year, the major types of activities resulting in savings in U. S. Steel purchasing were the following:

(a) Buyer suggested change in specifications of requirements, which resulted in lower price; (b) Buyer obtained lower prices from improved order practice; (c) Buyer developed more economical source of supply; (d) Buyer, through intelligent evaluation of proposals, obtained lower price than was offered by the supplier. The list is representative, of course, and does not exclude any other types of savings activity.

Typical case histories of savings developed through the Dollar Savings Program are outlined elsewhere in this article.

Another allied project is the Trial Order and Testing Program. Briefly, this is a program designed to tap every available source for new ideas and new products that will perform an operation as well or better than the old, at a lower cost,

When the use of a new or different product or service has been suggested by purchasing people to the plants, or the idea has been initiated by operating personnel, a formal request that it be tried is submitted from the plant to purchasing, through Purchasing Research. This "Trial of Commodity Request" is reviewed in this section and sent to the buyer of that particular commodity for his approval or rejection.

If the request is approved, a trial order for the item is issued. It is tested at the plant for which it is bought, with the plant given the right to use its own testing methods. (There is, of course, a constant coordinated effort going on between purchasing and the research and technology departments to set up uniform specifications on particular purchased commodities. The trial order and testing program is conducted differently, although research and technology facilities are available if requested by the plants.)

When tests of the commodity have been completed the results are submitted on a "Results of Trial of Commodity" form to purchasing, through purchasing research. If they are satisfactory, and point to the wisdom of using the tested commodity, they are distributed to interested plants and, when relevant, to the entire purchasing organization of the corporation.



Geneva works of the Columbia-Geneva Steel Division stretches over 1502 acres in this mountain-ringed valley of Utah.



U-Central Furnaces, American Steel and Wire Division, Cleveland.

Samples of the forms used in this program, and examples of the results that have been achieved under it, are reproduced elsewhere in this article.

The implications of Purchasing Research for the whole field of procurement are enormous. Its potential and its actual accomplishments at U. S. Steel would literally fill a volume. A whole range of basic purchasing problems and opportunities comes within its purview-from studies on whether to "make or buy" anything from small castings to a piece of major

equipment, on to a mechanical purchase order writing system under the new Integrated Data Processing system that U.S. Steel is pioneering.

## **Buying at General Operating Divisions** and Associated Subsidiaries

The big business of U.S. Steel buying is by no means confined to any one city or locality. The corporation has large steel producing units in many parts of the nation, as well as a large number of important fabricating and supply facilities. In addition it owns the largest cement-producing company in the world.

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The purchasing departments at these various general operating divisions and associated subsidiaries of U. S. Steel are headed and staffed with men imbued with the same spirit of creative purchasing inherent in the corporation's whole buying structure. Their skill and training are important factors in helping to maintain the competitive positions of their various organizations. Purchasing personnel and the locations of these various divisions and subsidiaries are shown in an accompanying chart.

Basically, purchasing at these divisions and subsidiaries follows the same general policies and procedures outlined throughout this article for central operations. Variations result, of course, from differences in the size and nature of the operations and from the fact that certain commodities, as noted, are bought centrally for the entire corporation. Although basic policies and philosophies are followed, it is on a free and independent basis within the framework of over-all corporation policy.

#### Tennessee Coal & Iron Division

Tennessee Coal and Iron Division is the largest steel producer in the south and an important contributor to the rapid economic progress of that area. Purchasing at TCI, headed by Purchasing Agent L. C. Teague is a fairly concentrated operation, since the division is engaged in a completely integrated steel manufacturing process. Within a radius of eight miles in the industrial district of greater Birmingham, Ala., are located the mines and quarries from which come TCI's ore, coal, limestone and dolomite, as well as complete facilities for smelting iron, making steel and rolling and shaping a variety of steel products.



The United States Steel General Purchasing Committee at a recent meeting in Pittsburgh. First row, left to right: J. F. Dailey, R. W. Berrett, R. L. Van Cleve, C. A. Ilgenfritz, H. W. Christensen, and L. C. Teague. Second row, left to right: C. H. Baringer, F. G. Buchheit, K. A. Smith, R. C. Moffitt, G. Engel, E. H.

Westfall, and F. G. Corregon. Third row, left to right: Roy A. Peterson, A. C. Greer, J. D. Peters, S. G. Cool, D. E. Longest, H. E. Lorenz, E. G. Barrett and J. R. Fox. Top row, left to right: H. W. Abramson, W. C. Matson, J. J. Heffernan, H. D. Boyd, and G. I. Gibson.

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A more widely scattered purchasing operation is that headed by Roger Berrett of the American Steel & Wire Division. The 18 plants of this division are sup-

plied with purchasing service from offices as far east as Worcester, Mass., and west to Chicago, Ill. They buy 8-10,000 commodities annually from 10-12,000 suppliers. To see that this widespread activity is operated at top efficiency, Mr. Berrett insists that his three district purchasing agents—at Cleveland, Chicago, and Worcester—hold regular meetings every month with all personnel in their departments.

Steel production in the West has increased notably in recent years, and U. S. Steel has had an important share in this significant development. Its facilities include coal mines, limestone and dolomite quarries, and furnaces and mills in Utah, as well as large steel-producing units in California. Heading purchasing for this expanding operation is Director of

Purchases H. W. Christensen, a former president of the National Association of Purchasing Agents.

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In addition to being outstanding in general purchasing matters, Mr. Christensen is looked upon as an expert on training purchasing personnel.

These three chief purchasing officers, together with Mr. Dailey, Director of Purchases, National Tube Division, and Mr. Moffitt make up a special committee to discuss problems unique to steelmaking activities. They meet semi-annually in Pittsburgh with Messrs. Ilgenfritz and Van Cleve. They are also members of the General Purchasing Committee, which assists the Vice President-Purchases in the formulation of proposed purchasing policies.

Purpose of this General Purchasing Committee is to discuss activities, objectives, analyze programs, exchange ideas on organization and economies, counsel with each other, and cooperate in the coordination of policies and procedures.

#### **Purchasing Directory**

General Operating Divisions and Associated Subsidiaries, United States Steel Corporation

#### **American Bridge Division**

United States Steel Corp.

525 William Penn Place Pittsburgh 30, Pa.

John B. Craig ...... Director of Purchases S. G. Cool ...... Assistant Director of Purchases

#### **American Steel & Wire Division**

United States Steel Corp.

Rockefeller Building Cleveland 13, O.

#### Cleveland & Pittsburgh District

W. W. Oliver District Purchasing Agent S. Parey ....... Asst. Dist. Purch. Agent

#### Eastern District

767 Millbury St. Worcester 7, Mass.

E. R. Johnson District Purchasing Agent G. W. Ham .... Asst. Dist. Purch. Agent

#### Western District

208 S. LaSalle St. Chicago 4, Ill.

F. D. Evans District Purchasing Agent L. H. Lavette Asst. Dist. Purch. Agent

#### Cyclone Fence Department

Waukegan, Ill.

E. Szura ...... Asst. Dist. Purch. Agent

#### Columbia-Geneva Steel Division

United States Steel Corp.

#### Columbia Iron Mining Company

Russ Building San Francisco, 6, Calif.

H. W. Christensen .......... Director of Purchases L. S. McCall .......Assistant Director of Purchases H. M. Gage .... Assistant to Director of Purchases

#### **Consolidated Western Steel Division**

United States Steel Corp.

P.O. Box 2015, Terminal Annex Los Angeles 54, Calif.

#### South San Francisco Plant

South San Francisco, Calif.
A. R. McLean ....... Purchasing Agent

#### **Texas Plant**

P.O. Box 341 Orange, Texas

J. E. Fitzgerald ...... Purchasing Agent

#### **Gerrard Steel Strapping Division**

United States Steel Corp.

2915 W. 47th St. Chicago 32, Ill.

K. A. Smith ...... Purchasing Agent

Michigan Limestone Division

United States Steel Corp.

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2650 Guardian Building Detroit 26, Mich.

F. G. Corregan ....... Purchasing Agent R. A. Engelhardt ....... Assistant Purchasing Agent

**National Tube Division** 

United States Steel Corp.

525 William Penn Place Pittsburgh 30, Pa.

J. F. Dailey ...... Director of Purchases J. G. Hepler ...... Assistant Director of Purchases

Oil Well Supply Division

United States Steel Corp.

2001 North Lamar St.

Dallas 1, Texas

E. H. Westfall ...... Purchasing Agent

Imperial Works

Oil City, Pa.

C. M. Mochel Works Purchasing Agent

Wilson-Snyder Works

First & Talbot Sts.

Braddock, Pa.

E. C. Wentroble .... Works Purch. Agent

Witte Engine Works

1600 Oakland Ave. Kansas City 3, Mo.

J. O. Eppright Works Purchasing Agent

Oliver Iron Mining Division

United States Steel Corp.

Wolvin Building Duluth 2, Minn.

Orinoco Mining Company

25 Broad St.

New York 4, N. Y.

E. G. Barrett ...... Purchasing Agent

Pittsburgh Steamship Division

United States Steel Corp.

Rockefeller Building

Cleveland 13, O.

A. C. Greer ..... Purchasing Agent

Tennessee Coal & Iron Division

United States Steel Corp.

P.O. Box 599

Fairfield, Ala.

L. C. Teague Purchasing Agent Jas. B. Noel Assistant Purchasing Agent Alfred J. Cox Assistant Purchasing Agent

Union Supply Company

1509 Muriel St.

Pittsburgh 3, Pa.

D. H. Boyd ...... Pur. Agent and Gen. Merch. Mgr.

**United States Steel Export Company** 

30 Church St.

New York 8, N. Y.

United States Steel Homes, Inc.

Charlestown Road New Albany, Ind.

3. R. Kiefner ...... V.P. and Director of Materials D. E. Longest ...... General Purchasing Agent

**United States Steel Products Division** 

United States Steel Corp.

30 Rockefeller Plaza

New York 20, N. Y.

C. L. Ficker ..... Director of Purchases

Boyle Plants (Los Angeles and Alameda)

5100 Santa Fe Ave.

Les Angeles 58, Calif.

M. V. McGahan ...... Purchasing Agent

Sharon Plant

P.O. Box 539

Sharon, Pa.

W. C. Campbell ...... Purchasing Agent

Port Arthur Plant

P.O. Box 1440

Port Arthur, Tex.

Fred Schuster ...... Purchasing Agent

Chicago Plant

14600 Princeton Ave.

Chicago 27, Ill.

Duell Gabbert ...... Purchasing Agent

**New Orleans Plant** 

P.O. Box 4026, Station F

New Orleans 18, La.

A. P. Claverie ...... Purchasing Agent

**United States Steel Supply Division** 

United States Steel Corp.

208 S. LaSalle St.

Chicago 4, Ill.

Roy A. Peterson ...... Director of Purchases

Universal Atlas Cement Company

100 Park Avenue

New York 17, N. Y.





More than 46,000 calls a year are made at U. S. Steel purchasing offices. Here is a typical scene at the Purchasing Division offices on the 12th floor of the 525 William Penn Place Building, Pittsburgh

### Training and Development of Personnel

Formal training efforts for U. S. Steel purchasing personnel in Pittsburgh were begun in 1948—although prior to that time some of the corporation's subsidiaries, notably Columbia-Geneva, were already engaged in such training activities. The training had a twofold aim—to impart knowledge and to generate constructive thinking.

After going through various phases of refinement, training is now essentially done on (a) an individual basis to impart knowledge, and (b) a group basis to promote thinking.

On the individual basis, each buyer makes regular field trips to acquaint himself with the production and use of the commodities he buys. In addition, special attention is given to men who—whether they have been in buying or have been recruited from within other parts of the corporation—have shown capacity for management responsibilities.

For these men, highly organized in-plant training programs, developed with the aid of the Industrial Relations Department, are set up. For periods of from 4 to 10 months, they familiarize themselves thoroughly with the various processes involved in steel production and their relationship to purchasing.

On the group basis, it was felt that the conference method of education was best to achieve the objective of constructive thinking among purchasing personnel. Thus, in the first part of this year, a series of conferences was held under the leadership of a retired university professor, who is also a former businessman. The series covered the major aspects of purchasing based upon the discussion of cases involving actual purchasing experience.

The cases were assembled from various sources, including the Graduate School of Business Administration, Harvard University, where F. G. Buchheit, Assistant Director of Purchases, recently completed the 13-week Advanced Management Course.

The meetings were held on successive Wednesday mornings from 10:30 to noon. The class was limited to 35, so that all could join in the discussions. The normal program consisted of a statement of principles by the leader, from a textbook or other source and the discussion of case studies as assigned. Members of the class were encouraged to present cases from their own experience as well.

These basic principles were aimed at in conducting meetings:

- (a) Participation by every member of the class is sought. Questions should call for thought and judgment—not for exercise of memory.
- (b) Discussions must be kept on the track, but should not be directed to developing predetermined answers. It is essential to get class reactions, but the conference leader should not inject his own opinions.
- (c) Exchange of experience by class members and expressions of their own opinions should be encouraged.

Summing up the results of this program, Mr. Mof-



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fitt had this to say at the recent convention of the National Association of Purchasing Agents:

"We are satisfied that the conference method of study has done a great deal to accomplish our objective of stimulating clear, logical thinking that will pay off in sound purchasing decisions. We know that the results are already showing up in our buying efforts through more constructive and open minded approaches to our responsibilities and problems.

"The various classes we held demonstrated the obvious but not often fully recognized fact that there are many views, opinions, and shades of meaning with respect to any significant purchasing problem. Experiencing this in a group discussion has definitely tended to broaden our people and make them more tolerant of the views of others."

With the background of experience gained under an outside group leader, it was decided that purchasing would conduct the next series of classes itself. All cases studied and discussed in the present series were developed from U. S. Steel's own experience. The program is now under the leadership and guidance of R. L. Van Cleve.

#### Looking Ahead

U. S. Steel's buying organization has geared itself to the progress of the corporation. It's aim is simply better, more profitable purchasing. And to keep its aim true, it is depending on forward thinking, careful planning and, above all, the enthusiasm of intelligent, responsible individuals.

These basic multi-part forms, in use at Pittsburgh, are standardized throughout the corporation, with allowance for name of individual division or subsidiary to appear on the form. Forms formerly were duplicated from a master mat.

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YOUR SUPPLIER likes to give good service, just as much as you like to get good service. He knows that it is the basis for sound business relationships. If he can't give the service that the purchasing agent asks—and if he has a real reason, not merely an excuse— he wants the purchasing agent to know what the reason is. If it can be eliminated through mutual understanding and cooperation, he wants to do his part.

One of the common reasons for slow deliveries is the specifying of "specials" instead of standard items. Specials take time to produce, quite aside from the extra costs involved. Sometimes buyers forget this and feel that a little extra pressure is all that is required to get delivery. Sometimes they assume that because an item is standard for their company's use it is standard for the manufacturer, when this is not the case. Sometimes they are bound by engineering specifications and can't do anything about it. But the fact

remains that specials take time.

Nelson Stud Welding (Division of Gregory Industries), Lorain, Ohio, puts it this way. Better than half of the company's stud shipments are standards, made from warehouse stocks, so the company knows both sides of the picture. "On special

## STANDARDIZE . . .

### or allow plenty of Lead Time

How one manufacturer reminds purchasing agents of the time factor involved when requirements are "special"

studs, we require 4 to 5 weeks lead time, and could offer no faster service if we doubled our engineering and production staffs....especially on stud orders requiring special tooling, special material, and extra rigid inspection."

Nelson is meeting this situation by sending a series of brief, informal letters to the purchasing agents of their customers, with the triple objective of standardization, service, and mutual understanding. The ideal answer, of course, is when all three objectives can be wrapped up in a single specification for a standard item.

The letters were mailed at twoweek intervals. Their message can be summarized as follows:

1. We welcome "special" business, and will do our best as to speed and service—which is pretty good.

2. We can do even better on standard items.

3. Mabye some of the special studs you are now ordering are 50 close to a standard that the difference would be negligible.

4. Our field engineers will be glad to work with you in reviewing your stud requirements to bring them "up to standard", which will give you faster deliveries and save you money too.

5. But if you still have to order specials, give yourself—and us—4 to 5 weeks lead time.

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## When Buyer's Check Bounces

Checks tendered in cash transactions are recognized in law as being conditional payments, and seller can recover title to the purchased goods . . . . but courts differ in their interpretation of the liability of subsequent purchasers who have relied on the presumption that title was valid

#### By Albert Woodruff Gray

A T A BANKRUPTCY auction sale in North Carolina, four machines were sold for \$1,626. After the auction the purchaser was offered \$2,000 for these machines and accepted the check of the buyer for that amount. The following day the seller learned that this check was worthless. When two days later the buyer telephoned to arrange for delivery he told him the machines had been sold elsewhere.

At the trial of the lawsuit for an alleged breach of contract for this failure to deliver the buyer said, "I knew at the time I gave the check that I did not have the funds in the bank to cover it. I did not tell the seller that I did not have the money, but deposited it two days later."

#### No Title Passed

The North Carolina court denied the buyer's claim for damages for the refusal of the seller to deliver, and the judgment in favor of the seller was affirmed a few months ago, with the statement by the appellate court;

"It is the settled law in this jurisdiction that where personal property is sold for a cash consideration and the buyer gives a check for the purchase price, the check, in the absence of an agreement to the contrary, does not constitute payment until it has been paid by the drawee bank. A worthless check is not payment.

"In such cases, as between the parties, the transfer of title is condi-

tioned upon the payment of the check by the bank on which it is drawn, and if the check is dishonored by the bank and not paid, or its invalidity otherwise established, no title to the property passes to the purchaser."

#### Goods Are Resold

The consequences from such circumstances are not confined to the immediate purchaser, but are often passed on to remote buyers—"The fathers have eaten sour grapes and the children's teeth are set on edge."

A few months before it made this decision, the North Carolina court had before it a case in which an automobile dealer in the District of Columbia gave a purchaser possession of a new car upon receipt of the buyer's personal check on the plea of the buyer that he wished to use the car over the weekend. A few blocks from the salesroom the buyer sold the car to another buyer and the next day the car was sold to a second buyer who had no knowledge of the circumstances surrounding the transaction. However the day after its receipt the first dealer learned that the check he had received was worthless.

Suit was brought by this dealer for possession of the car on the ground that title to the car had never passed to the first buyer and that he had never owned it. In rendering judgment awarding the dealer possession of the car on the ground that no transfer of ownership had occurred on the delivery

of this worthless check, the court said:

"In the case of so-called cash transactions in which the passage of title depends upon payment, a check is generally considered conditional payment only and does not operate to effect payment unless the check itself is paid.

"The rule that a check of a debtor is merely conditional payment applies to obligations arising out of immediate transactions as well as to payment of antecedent debts, and where there is a sale for cash on delivery and payment is made by check of the buyer, such check constitutes only a conditional payment. Until the check itself is paid, the title, as between the parties, passes only conditionally; and upon dishonor of the check the seller may rescind the transaction and reclaim that with which he parted."

#### Intent of the Contract

Here the court referred to a provision of the Uniform Sales Act, that is the law in the District of Columbia as well as in 35 of the states. It states:

"Property in specific goods passes when the parties so intend—(1) Where there is a contract to sell specific or ascertained goods, the property in them is transferred to the buyer at such times as the parties to the contract intend it to be transferred. (2) For the purpose of ascertaining the intention of the parties, regard shall be had to the terms of the contract, the

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conduct of the parties, usage of trade, and the circumstances of the case."

Here the intent of the parties was clearly a cash sale, and as no title passed to the buyer by the giving of a worthless check, the seller not only could retake the car but could recover the proceeds of its sale from some remote seller who had no knowledge of the giving of the worthless check.

A lawsuit was brought by a cattle owner in the Minnesota courts a few years ago for the proceeds of the sale of 33 head of cattle, for which a check had been given by the original buyer, that had been returned by the bank with the notation, "insufficient funds".

In the meantime the cattle had been loaded by this first buyer into trucks and transported to a commission merchant in St. Paul, who sold the cattle and remitted the prothe conduct of the seller precluded it from a recovery.

In its disposition of the first defense, the court said: "Where personal property is sold for cash on delivery and the purchaser pays by check on his bank, such payment is conditional and the delivery of the property is likewise conditional; and if the check on due presentation is dishonored, the purchaser does not obtain title and the seller may retake the property."

A further comment made by the court on this feature of the law, was: "A check is not payment when it is tendered by a debtor on his bank. It is a method of transferring the money from the debtor to the creditor. The delivery of the check and the acceptance of it are purely conditional acts, and if this check is dishonored there is no accord and satisfaction of the debt.

"There is no presumption that a

mission merchant. There was no intent on their part to default or deceive anyone in the transaction. They merely delivered possession of the livestock to a purchaser at their auction sale. They had no contact with the commission merchant at any time. That firm did not rely on anything the owners of the cattle said or did."

#### **Courts Disagree**

However, the rule laid down by the court in this case, that an innocent purchaser of property to which title has reverted to the original seller through the dishonor of a check given in payment, is equally liable with the wrongdoer, has not been unanimously accepted by the courts of this country.

A buyer in a Minneapolis jewelry store gave the dealer a check for \$400 signed with a fictitious name, in payment for a diamond ring. The buyer then pledged the ring as security for a loan of \$195. In a subsequent action brought by the jeweler against the lender of this money, for possession of this ring, the court held the jeweler entitled to the recovery of his property. It said of the qualifications of this rule by the courts of some of the states:

#### **Evidences of Title**

"There are circumstances wherein the seller is estopped from asserting that the delivery was conditional as against a subsequent purchaser in good faith, for value, who purchases in reliance upon the possession of the seller.

"For a time the rule seems to have been that a bona fide purchaser for value, without notice, was protected even where the seller obtained the goods by fraud. But the modern rule is that where the owner of personal property so clothes another with the evidences of title as to deceive a bona fide purchaser relying upon such evidence, the purchaser will be protected against the true owner."

Then in explanation of this exception to the rule the court added:

"The rule now under consideration does not depend upon actual title, but rests upon the conduct of the party which precludes him from disputing, as against the innocent acting person, the existence of the title or power which through negligence or mistaken evidence he caused or allowed to appear to be vested in the third party.

"In order that the real owner of personal property may be estopped

(Please turn to page 324)

#### REFERENCES

Weddington v. Boshamer, 75 S.E.2d 530, North Carolina

Handley Motor Co. v. Wood, 75 S.E.2d 312, North Carolina

Uniform Sales Act, Sec. 18

DeVries v. Sig Ellingson & Co., 100 F.S. 781

Gustafson v. Equitable Loan Ass'n., 243 N.W. 106, Minnesota

Comer v. Cunningham, 77 N. Y. 391

Engstrom v. Wiley, 191 Fed. 2d 684

ceeds directly to the author of this worthless check.

#### **Defense Denied**

In the suit brought by the Iowa cattle owner against this St. Paul commission merchant for the proceeds of the sale, the St. Paul firm contended that where one of two innocent persons must suffer through the wrongdoing of a third, the loss should fall on the one who had made it possible for the wrong to be committed and, second, that

creditor takes a check in payment, arising from the mere fact that he accepts it from his debtor. The presumption is to the contrary. Indeed, the delivery of the check to the seller by the purchaser is a representation that it is good and will be paid on presentation."

Then, of the contention of the St. Paul dealer that the owner of the cattle was precluded by his conduct from a recovery, the court continued.

"The owners of the cattle made no misrepresentations to the com-

## How the Purchasing Agent Can Use A Camera

... to save a dollar

. . . to prove a point

. . . to suggest an improvement

. . . to pass on an idea

. . . to illustrate a method

. . . to soften a shock

. . . to clarify a report

. . . to build good will

By John F. Gustafson, Purchasing Agent, Farm Supply Division, McMillen Feed Mills, Fort Wayne, Indiana

This article on the application of visual aids in purchasing activities is the third in a series on the general theme of "Crossbreeding Ideas"—showing how techniques developed in other fields can be put to work for better buying.

LASH! From tom-toms to television, man has struggled with the problems of communicating ideas and information. During this 20th century, photography has helped substantially. It has become an integral part of modern newspaper and magazine techniques. It is an important tool of education, training, and selling. Purchasing agents see it

used every day—in advertising and catalog illustrations, in salesmen's visual presentations, and in the industrial films that are frequently shown at association meetings to give the buyer a better idea of materials, processes, and products.

For some time, there have been in industry many important technical applications of photography, usually requiring specialized technical knowledge and equipment. The uses are broadening. Eastman Kodak Company, Rochester, N. Y., has prepared a free booklet entitled "Photography U.S.A." which illustrates sixteen basic uses of photography in industry. Shown in the section on "Purchasing" are pracschedules. tical applications to duplicate engineering prints, specifications, component selection and source information. Other sections of the booklet show uses of photography in product design and development, administration, management, research, testing and quality control, warehousing and distribution, and service. All of these potential uses of the camera are well worth serious consideration.

In this article, we consider photography rather as a personal and creative tool. As in every phase of business, communication is a vital part of a successful purchasing operation. Since it is now possible for the average person to take pictures good enough to be used as visual aids, modern photography can be an asset to the purchasing agent's system of communication.

During communication, we constantly describe our mental pictures, and too often we finish with the frustrated comment, "You'll have to see it for yourself" or "Words can't properly describe it."

The obvious answer to the wish—
"If I only had a picture!"—is to
take one. Modern photography
makes this possible. It is no longer
limited to commercial use by experts. Today, anyone can put it
to work.

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#### Snap Happy!

Most purchasing agents probably have a suitable camera for ordinary purposes. The pictures in this article were made with the 35 mm Leica IIC shown at left. A good used one costs about \$100. This small camera holds film for 36 pictures, and is convenient to take along for those "unpredictable" shots, or on trips in the field, to conventions, suppliers' plants, etc.

The next size larger camera takes 120 film and shoots 12 pictures to the roll. The most common equipment in this class is the reflex type. Good 35 mm and reflex cameras can be bought for as low as \$35.

Whenever possible, it is best to work with available light. Kodak's new Tri-X film is sufficiently high speed and fine grain to make good pictures possible even under low lighting conditions. To insure correct exposures, a light meter (\$12.50 and up) is a great help. Flash attachments are available for practically all models.

cover his own applications, here are some specific examples of how purchasing agents have made use of the camera to save a dollar, prove a point, suggest an improvement, pass on an idea, illustrate a method, soften the shock of disappointing news, clarify a report, and build good will.

#### Save A Dollar

Barbasol's R. F. Holtman used photography to save his company a substantial amount of money on a carload of damaged merchandise. After the supplier and the railroad had both declined to accept responsibility, this purchasing agent took a picture and sent it to the supplier. The evidence of inadequate bracing was so convincing and incontrovertible that Barbasol immediately received an apology—and a check for the damage.

#### **Prove A Point**

A private brand product must always be sold in terms of quality. The price and service may be better than those of the established, better known competing brands, but assurance of quality is the goblin that lurks in the customer's mind waiting to kill the sale.

The purchasing agent for a com-

pany procuring major appliances for resale under a private brand name recognized this sales problem. On a visit to his supplier's plant, he took a few informal but well chosen pictures that helped to establish the proof of quality. Some of them are shown herewith (Figure 1). They include:

1(a)—View of factory, showing its large size as an indication of the supplier's stability.

1(b)—Production line, showing large quantities being made.

1(c)—Parts to be installed, indicating quality of components.

1(d)—National brands lined up with private brands, demonstrating that they are all the same except for the name.

1(e)—Some of the supplier's personnel, showing the solid, reliable people who make the product.

A set of these pictures was furnished to the salesmen, so that they in turn could carry the story of product quality to their customers.

#### Suggest An Improvement

The photographs in Figure 2 were sent to a warehouse to show actual examples of neatness and improved ways of handling merchandise. An accompanying letter added specific details such as width of aisles, stacking of cartons, etc., to aid in putting these improved methods into effect.

#### Pass On An Idea

The purchasing agent is constantly exposed to the merchandising methods of the companies soliciting his business and to the displays at product exhibitions. When coming across an effective merchandising idea at such an exhibit, which might be adapted to his own company's product, many a purchasing agent has said to himself, "I wish the merchandising manager were here to see this clever display." Taking a picture of it (Figure 3) is a good second best way of passing along the idea.

#### Illustrate A Method

One of the Monday morning hangovers faced by a purchasing agent who numbers stores and inventories among his responsibilities is the problem of "dead stocks". This may include merchandise made obsolete by model changes, unsold at the end of the season, damaged in transit, discontinued, etc. Whatever the reason, there is only one

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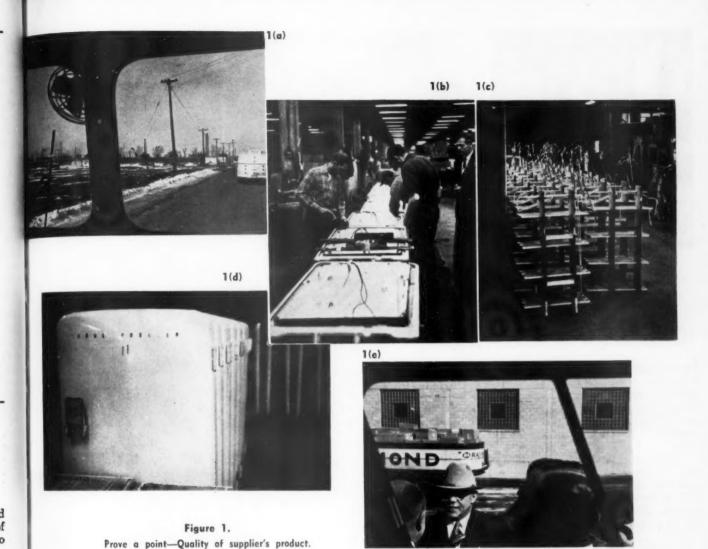
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end it can come to-a warehouse exit. There are various means of disposal. One of them—a special display for sales to employees—is shown in Figure 4.

#### Soften the Shock

demand, the purchasing agent un-derbought, and the supplier under-produced. Result: depleted stock and delayed deliveries, disappointed customers and disgruntled salesmen. Since avoiding or glossing over a bad situation is not a cure, a real-The sales manager underestimated istic report to the salesmen was far

Figure 2. Suggest an improvement—Good storeskeeping.







MAY, 1955

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Figure 3. Pass along a good idea.



Figure 4. Illustrate a method of stock disposal.

better than vague hedging. But the bitter pill would be more palatable with a sugar coating. Conclusion: soften the shock of disappointing news with a humorous picture and caption to accompany the explanation.

In this case, the photograph (Figure 5) showed the storekeeper standing guard over the meager pile of merchandise, and the caption stated: "Back to rationing! Precious fill-in cargo expected in ten days."

#### Clarify A Report

It became necessary to describe a new item of equipment—what it does and how it works. The best and simplest description evolved in words, read like this:

"Anhydrous Ammonia is applied with special shoes, like small plow or cultivator blades, that cut several inches into the ground. A hose runs from the ammonia tank down to each shoe, and a pipe about 3/4" in diameter, mounted on the back of the shoe puts the fertilizer treatment deep into the soil—six inches or more usually."

These are the facts. But this bare statement does not conjure up any vivid, realistic picture of the product. Now add a photograph (Figure 6) and see how much more easily the idea is communicated pictorially. You actually see the tank, the shoes, and the deep furrows in the soil.

#### **Build Good Will**

Everyone enjoys a picture of himself. For less than a thin dime you can have a print made and gain that personal touch. For example (Figure 7), here's that storekeeper again

-evidence that he is a member of the team, and recognition that will give him added pride in his job. An extra 50 cents will get you an 8 x 10" enlargement. An additional 18 cents will provide a desk stand. Framing an enlargement may be desirable in those cases where the purchasing agent wants to take this way of thanking a good supplier or customer for some special courtesy or service. The photograph can be a subtle and effective means of building good will, and the extent to which it should be embellished depends on circumstances.

The form in which to circulate a photograph will depend on the intended use. Referring to the various uses cited in this article, for many of them (e.g., to pass on an idea or to clarify a report) a small print is usually adequate. When the photographs are to be used in a sales presentation (to prove a point) or where detail is important (to suggest an improvement) an enlargement is better. In cases where the ideas have to be circulated to a large number of persons (to soften the shock) an offset method of reproduction may be necessary in place of individual photographic prints. This can be done well and economically.

There is no Hollywood ending to this story of photography in action as an aid to purchasing. Taking a picture is more than just snapping the shutter, and learning the technique so as to get effective pictures takes practice and perseverance. However, besides the personal satisfaction to be gained, the tangible benefits will make the accomplishment worth the effort.



Figure 5. Temper the bad news with humor.



Figure 6. Demonstrate the product.



Figure 7. Make a friend.

## Four Important Developments in METAL PROGRESS



R. G. Sloan

By R. G. Sloan, Manager Development Engineering Dept.

Armco Steel Corporation Middletown, Ohio

Address at a meeting of the Eastern Indiana Purchasing Agents' Association, Richmond, Indiana.

Purchasing agents, I suppose, are continually wondering what the "crazy" engineers are going to specify next. Each year you see many changes in the materials you buy and in the manner of using those materials. Often the changes and improvements are small, but added together over the years they make possible the steady evolution of better products. On the other hand, it sometimes happens that major changes take place within a short space of time, and these can be considered truly revolution—

A number of such major developments are in the making right now. It is possible that we shall see the practical evidences of this "Revolution in Metals" within the reasonably near future. Four of them have reached the stage where they should command the interest and attention of everyone concerned with the purchase and use of metals.

#### 1. Aluminized Steel Sheet

The first concerns rather commonplace uses of well known metals in a new combination. Steel sheets, protected by organic or metallic coatings, have long been used for roofing, siding, and other applications requiring good resistance to atmospheric corrosion. After World War II, aluminum began to appear in some of these applications. It has the necessary corrosion resistance, but has been lacking in strength in gages thin enough to make it reasonably economical.

Why couldn't steel be coated with aluminum? It can! One type of aluminum-coated steel has been on the market since 1939. This product has been used for its excellent heat resistance and heat reflectivity. But the coating metal is an aluminum-silicon alloy. It has certain shortcomings in outdoor exposure, and has therefore not been sold for outdoor applications.

Why wouldn't a steel sheet coated with pure aluminum give better atmospheric corrosion resistance than galvanized steel, and offer other advantages as well? It does! Such a sheet was produced experimentally 15 years ago and placed

in corrosion testing yards, the proving ground of corrosion resistant materials. This experience shows that a one-ounce commercially pure aluminum coating will last at least three times as long as a one-ounce zinc coating in a mild industrial atmosphere. This is a tremendous advantage in terms of ultimate cost.

And why wouldn't this aluminized steel be superior in some respects to solid aluminum? It is! It is stronger, and it costs considerably less per square foot.

Commercial production of such a product (Armco aluminized steel, Type 2) has already been announced by Armco Steel Corporation, and I predict that you will see it used in large volume within a few years.

#### 2. Cellular Structures

For a second example, let's take a look at what is happening to materials requirements in a more glamorous field—that of military aircraft and guided missiles.

The fantastic things that have already been accomplished command our attention. Some performance fig-

ures have already been released, and they are truly amazing—but they are still not good enough. Planes and missiles must go even faster and farther, and guidance systems must be more accurate and foolproof.

The speed requirement alone poses extremely difficult problems. The speed of sound—about 760 mph at sea level—was once thought to be the limiting speed for aircraft, but we all know that the sound barrier has now been eliminated. We have several types of fighter aircraft that can exceed the speed of sound in level flight under normal operating conditions.

But the sound barrier has been replaced by another and more difficult limitation—the thermal barrier. The skin of an airplane flying at the speed of sound at sea level is heated to about 300° F by air friction. At 40,000 ft. altitude, this air friction temperature is only about 150° F. This is not enough to affect present materials appreciably, but it is enough to cause pilot discomfort and require air

conditioning of the cockpit. The problem is greatly intensified as speeds are increased. At twice the speed of sound, air friction temperature is about 500° F at sea level and 300 to 400° F at 40,000 ft. This is too hot for the light alloys now used in aircraft construction; they are not completely adequate as airframe materials over roughly 300° F. In addition, engine heat causes parts in the general vicinity of the engine or near the jet stream to become much hotter. And twice the speed of sound isn't the top speed under consideration for either piloted aircraft or missiles.

The question is: What can be used instead? We must turn to the stronger metals such as steel. But these stronger metals are also heavier, and they will not provide a light enough plane if present types of structural design are used.

To meet this problem, an entirely new concept is being developed. It is called "cellular" or "sandwich" structure. It consists of a metal honeycomb core, covered top and bottom by a thin metal sheet. This type of structure gives tremendous strength with very light weight. If made of the right materials, it will retain most of its strength at the desired temperatures.

Now, what are the right materials?

Titanium comes to mind at once. It has desirable properties for this purpose, but it is very expensive, there isn't enough of it, and there

probably won't be enough for some time. Also, there is the little problem of making cellular structures out of it. We haven't yet found the way to do that.

Then there are the alloy steels. Some of them are strong enough after heat treatment, and might be made into cellular structures, although this would be very difficult because the structure tends to warp out of shape during heat treatment. Also, these steels are not corrosion resistant, so they would require protection. Unfortunately, at present there are no suitable protective coatings that will stay on the metal surface at the speeds and temperatures in question. This fact in itself is rather amazing. Imagine protective coatings being stripped from the airplane in flight! Yet it

Advances in metallurgy are changing buying habits by making new materials and new techniques available to industry, improving products, overcoming old and new problems, and widening the scope of application.

Here are four new projects emerging from the laboratory stage to practical commercial use:

- 1. Aluminized Steel Sheet
- 2. Cellular Structures
- 3. Cheaper Titanium
- 4. Atomic By-Products

happens at these speeds and temperatures. It happens even to helicopter blades, the tips of which move faster than sound.

That leaves the stainless steels. Some of them won't do the job. Some might, if proper fabricating techniques are developed. Many companies are working on this problem, and the finest brains in metallurgy and metal fabricating are being applied to it. The problem will be solved. The best solution to date, and the one that is receiving first consideration from practically all those working on cellular structures, is a new stain-

less steel called 17-7 PH. It will do things that stainless steels have never done before. It has better strength-weight ratio than the best commercial titanium alloys in the range of 300 to 800° F.

So here is another revolution a new type of structure, combining with a new alloy, to solve previously insurmountable problems.

#### 3. Titanium Production

Titanium has an important place in any consideration of the coming revolution in metals. It has already been mentioned in the preceding section, but we had to discard it there—as well as in many other desirable applications—because of its scarcity, excessive cost, and fabricating difficulty. So the problem here is to find a cheaper method of production.

Titanium has great strength, and weighs only 60% as much as steel. It is resistant to heat up to about 1200° F. Also, it resists the corrosive action of many chemicals, particularly those containing chlorine. One such chemical is common table salt; few materials resist its corrosive action. This property alone may one day make titanium important to buyers in many fields, even though they do not purchase metals directly.

For instance, salt is used in dyes and bleaching agents. The vats that hold these dyes and bleaches are costly to maintain, and their corrosion causes contamination. In some cases, presently used materials are satisfactory, but in severe cases they are not completely adequate. Titanium's resistance to the corrosive action of salt may some day mean better and cheaper textiles, paper, and synthetic fibres.

Titanium isn't really scarce. It is the fourth most plentiful metal in the earth's crust. But the only commercially successful method of producing titanium today is a very expensive batch process. As a result, titanium and its alloys cost as much as \$15 to \$20 per pound for rolled sheet and plate. This limits its use to only the most essential applications.

This will not always be true. Some day, some one will come along with a cheaper process, perhaps electrolytic. When this happens, titanium may be economical enough for large-scale use in many applications for which its unique properties would make it advantageous. This is what happened in the case of aluminum. It is happening to titanium, we shall see another revolution in

(Please turn to page 330)

## Reducing Overhead Costs through Purchasing



By Joseph A. Teece

Vice President and Director of Purchases Fansteel Metallurgical Corp. North Chicago, III.

Abstract of an address given at the Special Manufacturing Conference of the American Management Association, Cleveland, Ohio, January 11, 1955.

ORE IDEAS and innovations can reach a company through Purchasing than by any other means. We ask our visiting vendor salesmen to point out savings that could be made by slight design changes, alterations, or possible substitutions.

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Substitutions or changes are never made without the full concurrence of the engineering staff or the departments involved. It is the responsibility of the purchasing executive to point out opportunities for cost reduction, and to direct such efforts into channels promising the greatest results.

#### **Better Material**

In our chemical departments, we operate 20 medium and large size filter presses, each one using about 168 yards of cotton canvas filter. Due to a severe chemical action in our processes, it has been necessary to change these filters on an average of once every three months.

Whenever requisitions begin to

come in too frequently, it is a signal to Purchasing to look for something better, that would be the means of eliminating high replacement costs. We started a series of tests with synthetic cloths, and finally settled on nylon cloth for five of the presses, dynel cloth for six others, and orlon cloth for the remaining nine. After exhaustive tests, we found that by using these synthetics, it was necessary to change our filters only once every 18 months instead of every 3 months. The saving was \$40,522 for an 18 month period, or \$27,014 prorated on a yearly basis.

#### Cheaper Material

Another saving in our chemical operations, also spearheaded by Purchasing, is on commercial lime used for the neutralizing of acid and chemical waste. We originally purchased this material in truckload lots from local supplies at \$22.72 per ton. We felt that certainly some other type or grade should

be suitable, based on the end use of this item.

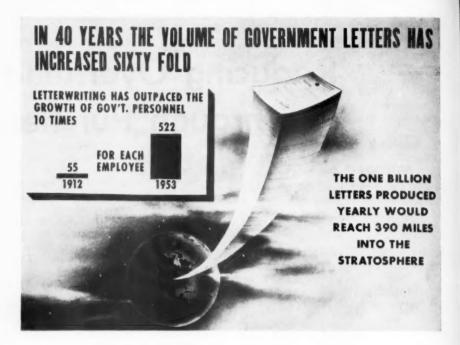
With the cooperation of our production people and our laboratory, we finally located a waste product in the form of lime flue dust, which gave us everything we needed at about one-third the price previously paid for truck and carload lots of commercial grade lime. Our usage is approximately 400 tons per year, and we dropped the cost from \$22.72 to \$8.74 per ton, a saving of \$13.98 per ton, or \$5,592 per year.

This action, as in most all such cases, required perseverance and patience on the part of Purchasing, and understanding, willingness, and cooperation on the part of our production people. This example reflects that perhaps American industry as a whole is wasting millions of dollars each year, buying things that are better than required, when a substitute would do the job equally as well.

During 1953 we pulverized 322,200 pounds of tantalite ore in a pul-

(Please turn to page 328)

## Paperwork is Costly!



. . . a problem that is literally of stratospheric proportions

. . . and some things the government is doing to relieve the load

By Lucy Eddinger

THE GOVERNMENT can save a quarter of a billion dollars by whittling down its paperwork, the current Hoover Commission study reveals. With paperwork a problem of primary concern to all purchasing agents as well as to government officials, some of the ideas aimed at reducing this chore and expense can also be adapted in private business.

Here are some of the findings, and some of the things being done to solve the government's problem of paperwork management.

#### 1. Top-Heavy Files

Government records presently occupy some 2 million file cabinets, taking up almost 16 million square feet of office space. The task of keeping them up is a full-time job for 159,000 people.

The Hoover Commission task force found that the most serious problem in office file operations is the existence of duplicate files. For the 4 million letters prepared in government offices every workday, an average of four copies are retained by the originating agency. The cost of preparing, filing, and maintaining these carbon copies

amounts to some \$62 million. The task force noted these prime cases of duplicate files:

1. No enforced policy on making of copies. Of 45 departmental correspondence manuals examined for this purpose, only three put any limitation on the number of extra copies. In the great majority of cases, this decision is a matter of individual judgment which easily grows into a habit. The tendency to have extra copies prepared goes

on unchecked and uncontrolled.

2. No fixed policy on where official files will be placed. Only three agencies have established control over the establishment of file stations. The temptation to set up duplicate files for personal convenience is strong.

3. Too great effort, on the part of both operating and records personnel, to provide against possible errors, no matter how remote. This leads to a multiplication of "overguarding" or "alibi copies."

Further, the task force found that 26% of the total volume of government records are designated as permanent." According to the study group, unless some action is taken

on our present volume of permanent records, the country will be faced with the need for constructing six additional buildings comparable to the giant National Archives Building in Washington to take care of this accumulation.

How essential is this retention of records for an indefinite period? According to the task force, the prime factor in determining how long a record should be retained in office files and when it becomes no longer necessary, is the rate of reference. The reference rate of files which are over two or three months old was found to be very low.

#### 2. Too Many Reports

The task force assigned to analyze the management of reports found that many government agencies have not fully considered the need for the many reports they require of their field offices, nor the use or value of the reports when submitted. As a rule, the following basic questions have not been taken into account:

1. Is it necessary?

2. Will it do the job for which it is intended?

3. Is it worth the cost?

The study group found that often, though a fully justified need for a report exists, the results are not worth the cost; or a search might reveal that sufficient information is already available in the office next door.

One finding of the task force, if put into effect, would save U.S. industry about \$22 million a year. The Internal Revenue Service and Social Security Administration have agreed that the detailed information on each employee, required in Form 941, Employer's Quarterly Federal Tax Returns, could be dropped from that report and picked up from W-2 forms. It is estimated that from 184 to 240 lines of such information are submitted annually. Two large companies alone have indicated that they will save about \$50,000 annually if Congress acts favorably on this recommendation.

#### 3. Too Long Letters

Government letter writers, it was found, well deserve the reputation they have earned for using long sentences abounding in legal terms, abstract nouns and passive verbs. The net result is:

1. Letters are hard to understand. This causes additional, unnecessary

correspondence.

2. Letters are unduly long. This involves additional, unnecessary cost.

It is estimated that the cost of creating and filing the same typical 175-word letter may be cut from \$2.50 down to around 20 to 30 cents by using a coded system called "Correspondex." This system contains the standard text for 300 different repetitive letters. It was developed in the Navy Department during the war to handle a large volume of repetitive mail. It has also been adapted commercially, and is being used by a number of insurance companies with similar good results. It works like this:

The person responsible for answering the letter merely marks down the code number of each paragraph he wants to use in his reply and sends it to the typist. The typist picks up the standard paragraphs from the "Correspondex," puts them together, and turns out a finished letter. Approximately the same letter—if steno-dictated, with the whole process of planning what to say, dictating, transcribing, reviewing, and signing—would cost about \$2.50 to produce.

Here are some improvements made in the correspondence section of the Baltimore district office of the Internal Revenue Service, that resulted in substantial savings and at the same time reduced the backlog of unanswered letters:

1. Routine letter writing chores were centralized in a correspondence section. Tax examiners and auditors were thereby given additional time for their primary jobs of examining and auditing.

2. "Correspondex" is used in answering 90% of the Division's correspondence. Extensive dictation and longhand draft preparation

have been eliminated.

3. A large volume of letters were replaced by postcards and forms.

4. Certain types of routine letters, 30% of the total, are sent directly from the mailroom to the typist for answering. Others are routed directly to action desks.

5. Unanswered routine correspondence is controlled by making specific employees responsible for blocks of mail. Lost time for tracking down previous correspondence has been almost completely eliminated.

#### 4. Speedier Distribution

Government agencies handle literally tons of mail each day. It was found that the laborious job of sorting, routing, and keeping track of each piece of mail requires 25,000 clerical workers and 8,400 messengers, at a cost of \$104 million.

Although speed of delivery is of prime importance, the majority of government mail operations are characterized by cumbersome procedures like time-stamping a piece of mail two or three times. In many cases where mail recording has

been almost eliminated, the mail operation has become more efficient.

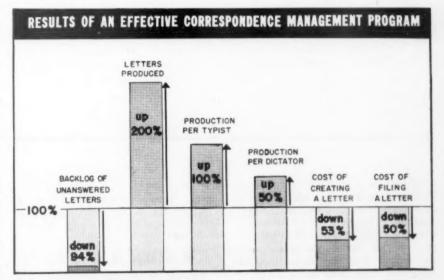
The Navy has been able to reduce its distribution time by two to four hours by using a code system called "Maildex," which helps routing clerks sort mail accurately and speedily. The routing clerk marks each piece of mail with a code number (taken from a master file) that indicates destination and type of action to be taken. In this way, the letter doesn't lie around at other office stations before finally reaching the person who is to take action on it.

The task force recommended, on the basis of these studies, that the efficiency of mail operations can be improved, and money can be saved, by limiting existing systems of mail control to important items only.

#### 5. Office Machines

The government's office machines, valued at several hundred million dollars, have a replacement and rental cost of about \$100 million per year. The study group reports that an individual agency's control over its small business machines has not been effective. Most agencies have little or no internal control over their purchase and use. It is reported that some of this equipment has been bought solely because funds are available during the current year, and not because of any actual need at the time.

One of the problems confronting the agencies in their efforts to get effective control over their business



Good management techniques of procedure ond control can be applied effectively to paperwork problems, resulting in better and speedier service, increased physical production, better utilization of executive and clerical time, and substantially reduced costs.

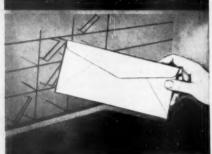
#### ELEMENTS OF PAPERWORK



#### RECORD KEEPING



#### AGENCY MAIL OPERATIONS



#### OFFICE MACHINES



### THE PURSUIT OF PERFECTION



### PAPERWORK AT



#### ATTACK THE PAPERWORK PROBLEM ON A BROAD FRONT

Most of the government's paperwork problems have their counterpart in private industry. The same tendencies and dangers exist—the same pyramiding of effort and cost as an original "piece of paper" burgeons out with multiple duplicate copies which have to be distributed, processed, and filed.

Government provides the classic example because of the inherently large volume of governmental activities, the complex and unwieldy organization, the traditional addiction to record keeping far beyond the requirements of private enterprise, and the fact that excesses and abuses in all these directions have long been permitted to continue and grow without specific managerial attention and control.

The Federal Government alone produces some 25 billion "pieces of paper" annually. The volume of correspondence amounts to a billion individual letters per year.

Reporting requirements include 25,000 periodic reports on field activities, 2,000 inter-agency reports, 100,000 internal reports, and 4,700 varied reports from industry.

Stored in standard filing cabinet drawers, the records occupy 5,000 file-miles—equal to the distance from the Pentagon to the Kremlin, and costing \$130,000 per mile annually to maintain.

Control of paperwork at the source is essential to keep the volume within reasonable bounds. But a more comprehensive approach to the problem, as represented by the Hoover Commission's recommendations, must also apply management controls to the related functions of records, mail operations, and office mechanization; give consideration to the qualitative aspects; and divorce routine paperwork so far as possible from the executive level.

machines is a lack of coordination between management and procurement personnel. Frequently, extensive procurement of business machines has been done without any advice or consultation with the group that will be using the machines. The task force found a lack of comprehensive knowledge of the various types of equipment

on the market, and their applications. They recommend that a clearing house for information on business machines be set up in government.

#### 6. Quality vs. Quantity

Among its recommendations, the task force called for more attention to quality—and less quantity in

government paperwork. They noted that where there was constant pressure for increased production to cope with the sneer volume of paperwork, the net result was poorer over-all quality. One of the conclusions drawn by the group is that increased production that increases errors further increases the volume of paperwork.

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## How to Avoid Porosity in Sand Castings

Good pattern design plus careful foundry practice will overcome most difficulties



Rounded contours, uniform sections, and ample risers eliminate most of the causes commonly responsible for porous castings

By W. L. Hooper, Pattern Engineer, Emhart Manufacturing Co., Hartford, Conn.

TECHNICAL requirements of castings are becoming more severe. This puts an added responsibility on the foundry—and on the buyer of castings as well. The following information has been compiled in an attempt to create a better understanding of the foundry problem of producing a sound casting, and to show what engineers and buyers of castings and patterns can do to help reduce the percentage of porous castings.

#### Causes of Porosity

The most common causes of unsatisfactory, porous castings can be summed up as:

- 1. Casting Design
- 2. Design of Pattern
- 3. Pouring Temperature and Rate
- 4. Composition of Metal

- 5. Moisture Content of Mold
- 6. Loose Sand in the Mold
- 7. Gating and Risering

#### 1. Casting Design

Casting design should be based not only on the expected service conditions of the finished casting, but also taking into consideration the foundryman's problems of production. That is to say, the engineer, when designing a casting, should envision the effects of molten metal flowing into a sand mold and then solidifying in a gradually thickening envelope.

There should be a generous use of fillets for the purpose of rounding all corners. This avoids the possibility of the incoming molten metal washing away the sharp corners of the sand mold. This sand, be-

coming buried in the casting, may show up not only as surface porosity, but also as a porous condition on machined surfaces, making the parts subject to rejection.

Most metals solidify by the formation and growth of crystals, the size of which are dependent upon the cooling rate. Obviously, thin sections which cool faster will have finer grain structure than heavier sections. When considering the junction of varied sections, be liberal with fillets, remembering that any sharp corner is a focal point for stress and strain, and may result in a "hot tear" appearing in the casting corner as an open crack.

Section thickness should be kept as constant as possible in order to effect uniform cooling of a casting. Thick sections, by "setting up" after



Photo Courtesy of Seco Safety Products Co.

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This hose is ideal for use with

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We also manufacture a complete line of industrial and municipal fire hose, as well as a complete line of industrial rubber products: belting, hose, packing and moulded rubber of every construction for every need. Through your Quaker and Quaker Pioneer distributor our research and engineering services are always available to help you solve any fire protection or industrial rubber problem. Write for free folder and name of nearest distributor.

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the rest of the casting has set, will frequently become porous in the center. Where (by necessity) a heavy section joins a thin one, a substantial fillet should be used and, if possible, a thick rib should be run from the heavy section to the outside edge, or parting line, of the casting, to which the foundry may attach their feed riser through which gases and impurities may escape. However, as will be explained later (under Point 4) the thick section will be a lower tensile material than the thin one. Castings with radical section thickness changes create real foundry problems.

Cores are an added cost to a casting. Elimination of cores must be done by the designer, considering the foundry's method of making a mold. Design a casting after the manner of a forging, if at all possible, so that the two halves of the mold may be pulled apart. Hooks or protrusions above or below the parting line create the need for a core. Shifting or misalignment of a core is a reason for a rejected casting.

#### 2. Design of a Pattern

Important finished surfaces should, if possible, be cast in the "drag" (lower half of the mold). Finished surfaces in the "cope" (upper half of the mold) should have substantial finish allowed in order to machine away any slag (often called porosity) that may have floated up in the casting.

Cylinders should, if possible, be cast vertically. Horizontally cast cylinders have been known to trap gases from the core, which will show up as porosity when bored.

Loose pieces held in place by nails or dowels on the pattern or in core boxes should be eliminated, especially on patterns slated for production runs. The use of a core on the pattern and a core inside of a core box is suggested. Loose pieces not only become worn and mislocated, but accuracy is often dependent on the skill and steady hand of the molder.

#### 3. Pouring Temperature

Temperature control at pouring is of utmost importance. This is a foundry problem. Pouring rate must be controlled, based on the size of gate and orifice (added to pattern equipment by the foundry) through which the metal flows into the mold, in relation to the thickness of the casting. As a general rule, thick section castings are poured cooler

than thin ones. Hot pouring of a heavy, thick section is apt to result in an open grain (porous) casting.

#### 4. Composition of Metal

It is a mistake to assume that because a certain chemical analysis of metal is good for one type of casting, it is the best to use for all others.

Iron poured into a 1½" section may be a fine, close grained, readily machinable iron. However if poured from the same ladle into a ½" section, a very hard—and possibly non-machineable—iron may result.

The reverse is also true. When iron suitable for a  $\frac{1}{8}$ " section is poured into a  $\frac{1}{2}$ " or heavier section, a very weak and possibly porous casting is produced.

#### 5. Moisture Content of Mold

This is another foundry problem. Foundries are now giving a great deal of thought and research to the amount of moisture used with molding sand and binders. Many foundries today have testing facilities to check the strength of their molding sands, the aim being to obtain maximum strength with minimum moisture. No longer do they depend on the superintendent's "feel". Too much moisture in a mold is one of the frequent causes of porosity in castings. The moisture becomes converted into steam and is trapped in the metal, resulting in "blow holes".

#### 6. Loose Sand

Loose sand falling into inaccessible pockets of the mold often becomes trapped in the castings, coming to light only during the subsequent machining, appearing as "porosity". This, too, is a foundry



"Mr. Droodle is ready to see you now, about your last shipments of bolts."

problem, and is classified as carelessness on the part of the molder.

#### 7. Gating and Risering

Gates and risers which are used to feed molten metal into the casting cavity of the mold must later be cut off from the casting.

Occasionally, porosity will occur in a casting in the area where the gate or riser was removed. This indicates that the connection between the gate or riser was too small, or the size of the riser was inadequate. These connections should be considered as an "escape hatch" for gases and impurities in the metal which are apt to cause porosity. Further, to avoid shrinkage, they should be so designed (by the foundry) to keep the metal in a molten state for some moments after the casting has begun to set.

#### Conclusions

The above factors have been outlined only briefly. Each is a special subject on which volumes of data have been written describing extensive technical research which has been directed toward solution of the problem of porosity in castings. It will be noted that while good foundry practice is obviously essential, a substantial share of the solution rests with the designers and buyers of the castings that the foundry is asked to produce.

Descriptions mentioned here refer basically to gray iron. However, these problems exist in all cast metals, ferrous and non-ferrous, though the methods of control may differ.

Permanent mold, lost wax, frozen mercury, shell cast, and pressure cast methods of making castings are all products of the foundry industry in its attempt to produce a sounder, more accurate casting free of porosity. Though successful in their own way, and advantageous for some types of products, they have not as yet been able to compete cost-wise with the conventional sand casting. In general, their use is justified only when the savings in machining cost offset the higher cost of such castings.

Buyers of castings should consider the ability of a foundry to make a specific type of casting. A foundry accustomed to making thin section, light weight castings cannot be expected to consistently produce castings with heavy, thick sections. Beware of the foundry offering to make all types of castings at a low, flat price per pound, unless quality and machineability are of little consequence.

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### Standardization Rediscovered

By F. J. MacDougall, Assistant to Director of Purchases, Allis-Chalmers Manufacturing Co., Milwaukee, Wisconsin

TODAY'S industrial vocabulary contains two magic words.

Automation is the magic word being currently exploited to describe our ever changing technological economy. It is a relatively new word, associated with the relatively new concept of the "push-button factory". Beyond a question of doubt, our technological advancements have been a major contributing factor in maintaining a standard of living superior to any other in the world.

Standardization is another magic word—an older word, probably automation's father—that has not been exploited sufficiently. It is a magic word with which today's purchasing agent should be on very intimate terms. Standardization may be likened to the romantic, legendary lost gold mine of the old west, with this important difference: Standardization is being rediscovered, and the rewards are real.

Historically, we find that the same conditions which existed 60 years ago and which were the basis for organizing Standards Societies, both here and abroad, exist today. Evidence of this fact may be found in comparing present day conditions with those which the London iron merchant, a Mr. J. J. Skelton, took exception to in 1895. Discussing the lack of uniformity in the manufacture of iron girders at that time, Mr. Skelton (quoted in Benjamin Melnitsky's "Profiting from Industrial Standardization") said:

"There is too much individualism in this country in quarters and upon questions where collective action would be economically advantageous. As a result, architects and engineers generally specify such unnecessarily diverse types of section material . . . that anything like economical and continuous manufacture becomes impossible. In this country, no two professional men are agreed upon the size and weight of girders to employ for given work, and the British manufacturer is everlastingly changing his rolls or

appliances at greatly increased cost of manufacture to meet the irregular, unscientific requirements of professional architects and engineers."

Now the year is 1955. Within the past 60 days, purchasing executives of a group of end product manufacturers met with executives of their component manufacturers to discuss impending increases in the costs of raw materials, which were destined to be passed on to the end product manufacturer. What did they find?

- They found that there was too much individualism. The end product manufacturers offered their customers up to 8 different sizes of the commodity, although it is recognized that the maximum efficiency of the end product involved is obtained within 2 sizes of the component.
- 2. They found that collective action on the part of the end product manufacturers would be economically advantageous, as the component manufacturers stated that they could reduce their costs and absorb the impending increases in raw materials if they had fewer sizes to produce.
- 3. They found that because of the irregular and unscientific requirements of the end product manufacturers, the component manufacturers were constantly changing their molds or appliances at greatly increased cost of manufacture.

As a result of this meeting, a committee consisting of representatives of both sides has been assigned the task of resolving the problem through standardization. Their objectives:

 Reducing the number of sizes of such components from some 320 varieties to a more reasonable figure in view of the fact that 23% of the sizes offered represent 92% of the total volume used; or

 Establishing a dual pricing system which would reflect the actual cost of producing specials which would likewise rerult in a relatively lower cost for components produced on a mass production basis.

By either method, the component manufacturers agreed they would be able to more than offset any anticipated increases in raw material costs. By either method, standardization will result, encouraging the purchase and use of standard sizes and discouraging the use of specials.

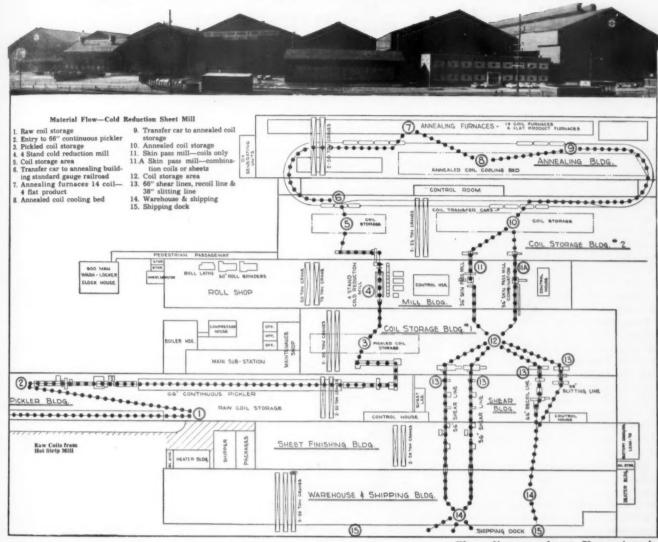
This actual experience points up two very important facts:

- Standardization is a solution to many of our recurring economic problems today.
- 2. The purchasing executive today, with his vast commercial knowledge, is in the best position to implement the solutions to many of these problems through standardization.

While standardization, in some degree, has been traced back to the time of the Romans, it is still as current and as close to you as the transaction you are presently working on. There are many areas in industrial standardization waiting to be exploited—with profits and that all-important competitive advantage as your reward.

Both automation and standardization will play a vital role in the continued success of our economy in the competitive years ahead. Automation is in the province of our technical personnel. They can't accomplish it without standardization. And standardization is a field in which the purchasing agent can make an effective contribution.

## How we use 7 buildings to process quality into cold rolled sheets and strip



● Coils come rolling in from the hot strip mill. They've been carefully watched from the time they were ingots and slabs. Now, they're ready to be cold reduced. And the same care that went into making the original steel goes into each step of the process that takes place in these seven buildings. The result: the quality sheet and strip you always expect, and get, from Youngstown. And better fabricated products for you.

Flow diagram shows Youngstown's cold reduction sheet mill at East Chicago. These facilities mean customers can reduce inventories, get quick delivery on sheet and strip they need.



COLD ROLLED
SHEETS AND STRIP

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## Picking that all-important ASSISTANT

By Ted Knight

AVE you been placed at the head of a department—or a division—or a section? One of your first responsibilities is to pick a chief assistant. It may prove to be your most important decision. Will you go about it like drawing a number from a hat, and spend the rest of your days wondering why things never go quite right? Or will you do it thoughtfully and logically?

There are several schools of thought on how to proceed.

Seniority is one basis. It can be rationalized if you consider position as a reward for length of service. It doesn't necessarily result in getting the right man for the job. The higher up you go on the organization chart, the more important it is to make ability the criterion. The ablest workers in the ranks don't always make the best supervisors or executives.

Others advocate a rotation of subordinate supervisors, placing different ones in charge of the department during the boss's absence. By so doing it is felt that there is a better opportunity for judging the administrative capacity of each supervisor, leading eventually to the selection of the best one for a permanent appointment.

Some executives, however, object flatly to this procedure. They believe that confusion results when different supervisors take over at different times. It is far better, they contend, that when the boss is absent, everyone should know who is in charge and automatically turn to him. Rotation can engender rivalries that may later lead to jealousies and undermine morale and discipline when the final choice is made.

Third, there is selection on the basis of well defined qualifications. Determine the qualities, present and potential, that are required to do the job, and analyze each prospect to see how he rates in them. Some qualities, like intelligence, integrity, and dependability, are of course fundamental. Others are

more relative in their nature and importance, and there may be modifying factors to be considered. Aggressiveness may be a good trait—but not if it is expressed in ruthless ambition, a generally "hard boiled" attitude, and a thoroughly unpleasant personality. The ability to get along with people is important—but not if it means unwillingness to take a clean cut position, or a tendency to do the expedient thing rather than the right thing.

In any case, be sure that the promotion is likely to be one that will "stick", otherwise you will merely lose a good man. If you return him to his former subordinate job, he will almost certainly hold resentment against you and against his successor, and his usefulness will be destroyed. Most executives agree that, once the second man is removed from that position, he must be removed from the department—and probably detached from the company's payroll.

Here are some of the things to look for:

Ability to take responsibility. This will largely determine how far you can go in delegating authority to him, thereby relieving yourself of detail and giving yourself the freedom to give more time and thought to vital administrative functions. If it is necessary to be forever checking on his work, the choice has failed of its purpose. If you choose well, the department should function as well smoothly in your absence as when you are there. This is a measure of your own success as an executive as well as of your assistant's ca-

Ability to learn. You may not find the ideal assistant ready at hand, but many shortcomings can be corrected with training and experience. If he has the ability and willingness to acquire and apply the needed techniques, with proper guidance, the choice may still be a good one. Remember that selecting an assistant is something like buy-

ing a semi-finished product, and it is your responsibility to mold him to the job.

Fairness is a quality that must be carefully assessed. It is not a natural human attribute, for most of us have favorites and prejudices among people and ideas. Yet favoritism is a fatal bar to executive capacity. Unless the supervisor has developed a fair and judicial attitude in his dealings with subordinates—with objectivity, courage, and sympathy—he will never make a good executive and should not be chosen as the No. 2 man in a department.

Loyalty to his company, his de-partment, his superior, and his associates and subordinates, is another essential. A disloyal assistant, far from being an asset, is a distinct liability, and can undermine everything a department head is trying to accomplish. Any tendencies of this sort must be spotted before raising a man to executive rank. On the other hand, loyalty begets loyalty. Workers respect and trust the man who can be relied upon, and you too can put faith in such a man as an assistant, confident that established policies will be carried out with the same conscientiousness as if you were personally handling a

Health is a factor that should not be overlooked, since you are seeking dependability. The second man is expected to take much of the administrative burden off your shoulders and to function competently in periods of stress or emergency. This calls for vigor and stamina commensurate with the demands of the job—the ability to carry on continuously and consistently in day-to-day operations and to cope with peak or emergency conditions in stride, as they arise.

These are some of the factors on which a potential No. 2 man should be judged. Selecting the right man can mean much to your own success, efficiency, and peace of mind. It is also a measure of your own executive judgment and capacity.

ENTIRELY NEW ... differently NEW

MAINTENANCE-FREE OPERATION



LIGHT WEIGHT
4 ton model weighs

4 ton model weighs only 51 pounds.

SELF-ADJUSTING HEAVY DUTY BRAKE

OVERLOAD PROTECTION

FULLY ENCLOSED COMPONENTS

SEALED-IN LIFETIME LUBRICATION

ADJUSTABLE SAFETY LIMITS

LOWEST HEADROOM

PUSH BUTTON CONTROL

CAPACITIES from % to 1 ton. Single and 3 phase.

\$149.50 and up



#### "CM-Alloy" FLEXIBLE LINK CHAIN

...designed to serve you without costly maintenance

Lodestar is the first truly "heavy duty" version of the small electric hoist. It is built to serve you without costly maintenance or interruptions in your work schedules. The Lodestar is designed to serve you... not to be served.

Fully enclosed construction guards the Lodestar against damage. Sealed-in lifetime lubrication protects it against wear. Special alloys make it rugged. The newest materials, components and design techniques give the Lodestar its stamina, efficiency, simplicity and safety. The initial cost is practically your only cost with a Lodestar...an extremely low cost indeed!

#### CHISHOLM-MOORE HOIST DIVISION

Columbus McKinnon Chain Corporation

Tonawanda, New York

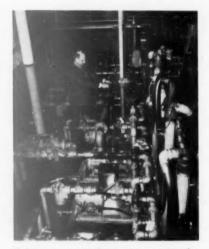
REGIONAL OFFICES: NEW YORK • CHICAGO • CLEVELAND
In Canada: McKinnen Columbus Chain Ltd., St. Catharines, Ont.



# New Products Ideas



You can get more information on any new product shown in this section. Just check the number that follows each item and circle the corresponding number on the Inquiry Card, page 17. Drop the card in the mail and we'll do the rest.



Valves connect to four underground tanks. Three of them hold 5,000 gallons each; the fourth holds 8,000 gallons.

# Underground Solvent Storage Saves Curtiss-Wright \$167,000 per Year

Curtiss-Wright has gone "underground" in the handling of solvents, has increased efficiency in the process, returned 500 square feet of floor space to manufacturing use, and realized savings of more than \$160,000.00 per year in overall operating costs.

This took place at the company's Wright Aeronautical Division, where Turbo Compound, turbojet, turboprop, and ramjet engines are being built and developed. The improvement in efficiency came from a new method of receiving, storing, and dispensing Perm-a-Clor, De-

trex trichlorethylene, a solvent for engine parts degreasing.

In place of the system developed in wartime went a plan using four large capacity underground tanks and quicker, better ways of receiving and dispensing the solvent.

Under the former method the company turned over about 16,000 gallons per month of Perm-A-Clor, bought it in carload lots of 50-gallon drums that were stored in the oil house, and then dispensed it against requisitions from the machine shop.

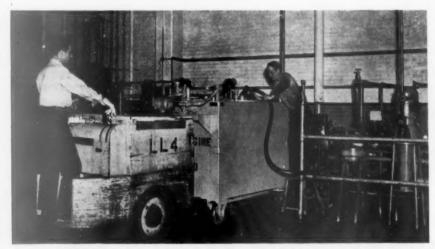
The weight of the drums, roughly 700 pounds each, required at least two men for handling. When there were solvent requisitions to be filled, a pumping rig had to be moved from drum to drum to transfer the solvent into the degreasers.

Nearly all handling is eliminated, however, by the present system since tank-car quantities are now pumped directly into four underground storage tanks and redistributed from there. Three of the tanks have a capacity of 5,000 gallons, and the fourth holds 8,000 gallons.

These savings result:

- 1. Lower prices on tank-car lots (\$1.26 gal. vs. \$1.32 gal. in drums).
- Available useful plant area increased by more than 500 sq. ft.
- Handling and accounting cost of empty drums eliminated.

(Please turn to page 134)



Portable tanks which dispense solvent to the degreasing machines are filled in the pump house. Labor cost is much less than handling 50 gallon drums.



Wherever throw-off, drip or squeeze-out is a problem...

# **USE SUNTAC OIL**

#### **OIL LEAKAGE MEANS:**

higher lubrication costs messy machines hazardous oil slicks on the floor

#### SUNTAC OIL:

cuts leakage lowers oil costs minimizes hazardous floor conditions

In addition to its leak reducing properties, Suntac has all the high quality of expensive general-purpose oils. Suntac is fortified against oxidation to assure long oil life and against rust and corrosion to protect valuable machines. And, last but not least, because the leak-reducing agent is 100% petroleum, Suntac leaves no gummy film or residue.

For more information about Suntac, the oil especially made to prevent drip, throw-off and squeezeout, see your Sun representative or write for your copy of Suntac Technical Bulletin to Sun Oil Company, Philadelphia 3, Pa. Dept. PG-5.



INDUSTRIAL PRODUCTS DEPARTMENT

# **SUN OIL COMPANY**

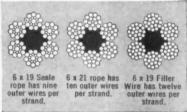
Philadelphia 3, Pa.

IN CANADA: SUN OIL COMPANY, LTD., TORONTO AND MONTREAL









# What can you do better with 6x21 Red-Strand wire rope?

What is 6 x 21 wire rope? It is sometimes called 6 x 16 Filler Wire. It is a construction of intermediate flexibility-between coarse 6 x 19 Seale and flexible 6 x 19 Filler Wire. 6 x 21 is a good choice where the operation includes abrasion and at the same time the rope is subjected to considerable bending. On certain types of duty the choice is vital to save time, effort and money.

When to use it? If, for example, your 6 x 19 Filler Wire rope is wearing out too soon because of abrasion, 6 x 21 with larger outer wires may provide much longer life. If severe bending is damaging your 6 x 19 Seale, a change to more flexible 6 x 21 may be profitable.

It is used on certain dragline jobs, vertical shaft hoists, drag and slackline scrapers, inclines, rotary and cable tool drilling rigs, and other equipment.

Can you use it to advantage? The best answer to that question comes from your Leschen technical man. Leschen representatives will help you get the most out of your wire rope. And with Hercules Red-Strand—as with all other Leschen wire rope, you are assured of higher-than-rated quality for longer-than-expected service.

See your Leschen man soon. He can easily be reached through your nearby Leschen distributor.

Depend on Leschen's higher-than-rated quality for longer-than-expected service.

LESCHEN WIRE ROPE DIVISION

HERCULES Red-Strand® (LESCHEN) H. K. PORTER COMPANY, INC. St. Louis 12, Missouri



For More Information Circle No. 164 on Inquiry Card-Page 17

(Continued from page 132)

- 4. Freight costs on returning drums to vendor eliminated.
- 5. Injury risk to men handling drums eliminated.
- 6. Labor and distribution costs slashed more than 50 percent,

With the underground tank system, the company also adopted portable tanks with integral pumps for dispensing the solvent to the degreasing machines. These tanks, with a capacity of 550 gallons, are filled at the Oil House from the underground tanks and moved to the shop by electric trucks.

The principle labor now involved in distributing the solvent is placing the portable tank's nozzle into the degreaser, and pushing the button to start the pump. The capacity of the degreasing machines vary in size with the largest holding about

Total savings, monthly, average approximately \$2,000.00 and are figured at \$.12 a gallon based on the normal usage of the solvent at 16,-000 gallons.

1. FR/

2. MA

4. M/

The big savings, however, is in reclaiming the Perm-A-Clor. When the solvent gets too saturated in the degreaser to be effective, it is collected and returned to the Oil House for distilling and eliminating such impurities as metal particles, waxes, oils, and sludge. Cost of reclaiming per gallon is \$.09. When reclaimed, it is returned to the underground storage tanks to be ready for the next cycle.

Under the old system of carload lots, drums for storage and dispensing the solvent, reclaiming was a practice but not to the extent that it is now. It was too cumbersome a job and too time-consuming.

Some 10,000 gallons are processed per month, thus giving Curtiss-Wright these savings:

Cost of new Perm-A-

\$ 12,900.00 Clor Cost of reclaiming Net savings per month 12,000.00 144,000.00 Net savings per year Total savings yearly are estimated at \$167,000.00.

savings include better means of housekeeping and a complete cycle of handling the solvent that does not involve a final disposition out of the Wood-Ridge plant with no hazards in handling nor delays in production.

Circle No. 41 on Inquiry Card-Page 17

USE INQUIRY CARD PAGE 17

WIRE ROPE

# for all your general-purpose control



# MANUAL AND REDUCED VOLTAGE STARTERS

- 1. FRACTIONAL HORSEPOWER MANUAL STARTERS (CR1061) are small-size, across-the-line starters operated by toggle switch—includes accurate bi-metallic overload protection.
- 2. MANUAL STARTER UP TO 7½ HP (CR1062) has snap-action toggle switch or push-button operator which trips free on overload. Available in 2-, 3-, or 4-pole forms.
- 3. MANUAL REDUCED-VOLTAGE STARTERS (CR1034) are autotransformer types used where reduced starting currents or limited starting torques are needed. Undervoltage protection prevents automatic restart in event of power failure.
- 4. MAGNETIC REDUCED-VOLTAGE STARTERS (CR7051, CR7056) are autotransformer or resistor types designed for remote or automatic reduced-voltage starting. Timing relay provides proper timing for step-starting, eliminating excessive motor inrush currents.



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General-Purpose Relay. (CR2790). For control circuit applications. Small in size with extremely long life. Rated 10 amps continuous (left).

Solenoids (CR9500). New strongbox solenoid provides firmly anchored terminal and lead-type connections in a single unit. 22% smaller units mount five different ways. Complete rating coverage in push and pull, 24 to 600 volts, 25 to 60 cycles and d-c (right).





Plugging Switch (CR2962), A pilot circuit device used in conjunction with reversing magnetic starter to automatically apply and remove plugging power for quick stopping of a motor.



Pressure Switches (CR2927). A pilot device used to handle small motors directly or in conjunction with a magnetic starter for starting and stopping pressure generating equipment.



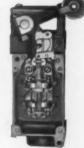
Float Switches (CR2931). Used in conjunction with a magnetic starter to start and stop small a-c and d-c motors. Float and counterweight may be interchanged for tank or sump operation.

# LIMIT SWITCHES

LEVER OR ROTATING TYPE

Double Circuit Lever Type

(CR9440D). Snap action contacts can be changed from normally open to normally closed or vice versa. In open or oil-proof enclosed forms.



Snap-Action Lever Type

(CR9440J). Used for heavy make-andbreak requirements. Forms are available adjustable through 360 degrees. Operating lever firmly attached to shaft by double set of splines.

Small Snap-Action Oil-Tight

(CR9440K). Only 1½ and 1½ by 4½ inches. Oil-proof switch has 4 interchangeable heads that can face in any of four directions.



Rotating Cam Type

(CR9441E) Two snap-action contact units operated through a worm gear reduction. Operating cams are easily set by adjusting only two screws.



COMPLETELY NEW CATALOG OF G-E GENERAL-PURPOSE CONTROL

Advertising and Sales Promotion Section L734-1

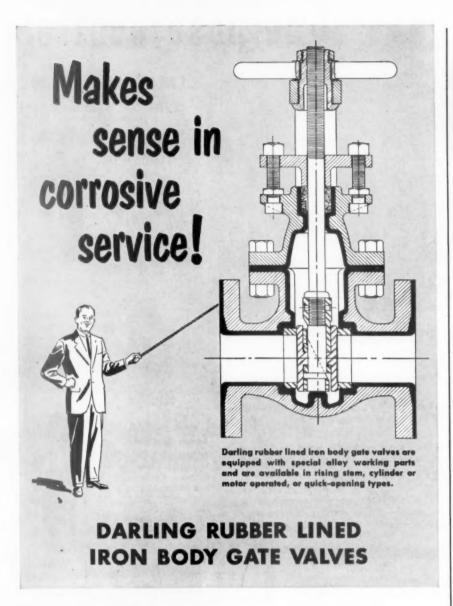
General Purpose Control Dept. General Electric Company Bloomington, Illinois

Please rush me a free copy of the new general-purpose control catalog, GEC-

Name	***************************************
	***************************************
Company	<b>/</b>
	***************************************
City	State

For more information on any of these general-purpose controls, contact your nearest G-E Apparatus Sales Office, or distributor.

GENERAL ELECTRIC



Problem: How to get away from costly, special alloy gate valves in handling corrosive fluids and still have long, trouble-free valve life.

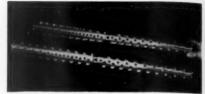
Answer: For pressures up to 150 pounds and temperatures to 180° use Darling iron body gate valves with the permanently bonded hard rubber lining. They're giving outstanding service in job after job. Moreover, they have the Darling fully revolving double disc parallel seat feature that multiplies disc and seat life and assures tight closure longer . . . much longer!

Write for complete information on these exceptional rubber lined valves . . . or for data on other Darling gate valves including the range of alloys, types and constructions for ordinary or special services.

# DARLING VALVE & MANUFACTURING CO. Williamsport 7, Pa.

Manufactured in Canada by Sandilands Valve Manufacturing Co., Ltd., Galt 19, Ont.

#### Inserted-Tooth Carbide **Broach Avoids Chatter**



This line of broaches features a broach bar having machined integral lugs which back up each of the inserted carbide tipped tools. This results in minimum tool chatter and tool breakage and permits heavy cuts to be taken. The broaches can be used on conventional surface broaching machines. The manufacturer is National Broach & Machine Co., 5600 St. Jean Ave., Detroit 13, Mich.

Circle No. 42 on Inquiry Card-Page 17

# **Riveting Automation**

Tubular Rivet & Stud Co., Wollaston, Mass., says that its multihead riveter is a tool for the automation of riveting. It holds five components on one fixture, sets twelve rivets, six at a time and assembles 250 units per hour-or double the previous man-hour output on the same job. This new development consists of an arrangement of 12 air-operated riveters in two banks of six-joined by a bridge to accommodate a rolling fixture. Component parts are fed to the operator by means of conveyors which also take away finished parts. Circle No. 43 on Inquiry Card-Page 17

# Steam-Water Mixer Furnishes Hot Water Most Anywhere



A steam and water mixer, which utilizes full heat energy by injecting steam directly into the water, has been developed by Fulton Syphon Div., Robertshaw-Fulton Controls Co., Box 400, Knoxville, Tenn. It may be used wherever hot water is required and steam and water are available. Control is available in five convenient temperature ranges.

Circle No. 44 on Inquiry Card-Page 17

# SILENTBLOC Best way out of a Shaky situation



Vibration is the universal plague of machinery and heavy equipment in industry... and Silentbloc mounts are the best cure. These unique mounts squelch vibration, cushion shock, and stand up to the pounding loads encountered in the bulkiest machinery. Silentbloc survives years of torturing stresses with practically no measurable fatigue.

For a complete up-to-date file on vibration control products, write for Silentbloc Catalog #4240... The General Tire & Rubber Company, Industrial Products Division, Dept. C, Wabash, Indiana.



"From Plans to Products in Plastics and Rubber"

# These are General Tire Industrial Products in Industry

Silentbloc vibration and shock mountings • Silentbloc bushings • Silentbloc bearings • Oil & hydraulic seals • Bonded to metal rubber parts • Hydraulic brake parts • Metal stampings • Extruded & molded rubber • Extruded plastic • Polyester glass laminates • Sponge rubber • Glass run channel • Vibrex® fastners.



For More Information Circle No. 168 on Inquiry Card-Page 17

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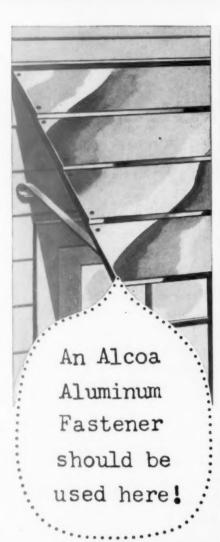
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It's an aluminum awning assembly, worth the lasting strength of Alcoa® Aluminum Fasteners. You avoid galvanic and atmospheric corrosion. You get perfect color match; you get the very highest quality product. Your local Alcoa distributor has a complete stock.

P. S. In this awning assembly, we suggest an aluminum sheet metal screw from Alcoa's com-

plete line of aluminum fasteners.



Gentle	men:				
Please	send	complete	specifica	tion	data
and sa	moles	of your a	luminum	frete	ners

name\_\_\_\_\_

title \_\_\_\_\_\_\_address

Always Fasten Aluminum with Alcoa Aluminum Fasteners

For More Information Circle No. 169 on Inquiry Card—Page 17

#### Electrical Connectors Positively Seal, Lock



Electrical connectors, manufactured by the Rodale Mfg. Co., Inc., Emmaus, Pa., incorporate a flexible rubber lip over the female component. This flips over the male component to insure a positive sealing and locking action. This seals out moisture, dirt, dust, and metal particles. The connector components themselves are molded of phenolic and completely encased in rubber or neoprene housing to assure that the unit will withstand punishment in any application.

Circle No. 45 on Inquiry Card-Page 17

# Platform Scale Automatically Controls Weighed Loads



Electrical weighing with automatic control of flowing powdered materials in hopper carts is accomplished by a new floor level platform scale. The scale of 500 lb capacity can be set in a pit 101/2" square and less than 12" deep. A 10" square platform can be provided. A variety of instrumentation can be used with the scale, including indicators, recorders and control equipment. Principal advantages of electrical weighing are said to be centralized, remote indications of loads and simplicity of use in an automatic control system. The scales are a development of Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa.

Circle No. 46 on Inquiry Card-Page 17



# We have no time... at Belmont!

Once your order is in – OUR TIME IS YOURS. For here at Belmont every order is "rush" ... goes right into production for earliest possible delivery. A full crew stands ready at all times to serve you.

Now, with expanded facilities and up-to-the-minute equipment, the Belmont team will supply the usual Belmont quality-faster than ever before!

Don't specify "rush" - specify "Belmont"!



# Belmont

SMELTING & REFINING WORKS, INC.
309 BELMONT AVENUE - BROOKLYN 7, NEW YORK

"Putting Mettle into Metals Since 1896"

For More Information Circle No. 170 on Inquiry Card—Page 17 PURCHASING

# BRAZING...

# There is no substitute for REYNOLDS experience and facilities



Automatic welding of couplings to 5" aluminum pipe at 65% greater speed than hand welding. Couplings are welded to both ends at same time.

Spot welding angles to aluminum telephone booth top. 14 Sciaky machines in this department speed production of apot welded parts.

Brazing refrigerator parts. Continuous operation of automatic brazing equipment assures on schedule production of brazed parts.

Times .

# FREE:

Write for your copy of the new 24-page "Catalog of Facilities." Get full details on the tremendous production facilities of Reynolds Aluminum Fabricating Service.

See "Mister Peepers", starring Wally Cox, Sundays on NBC-TV.



You can design any welded aluminum parts for your products with confidence because Reynolds Aluminum Fabricating Service can produce these parts and produce them efficiently and economically to your specifications.

Reynolds years of day-in, day-out welding and brazing on a wide variety of jobs—plus continuous developments and experimentation in the use of welding and brazing equipment and techniques—assure you the very highest quality welded and brazed parts.

Look at the photos on these pages. Note the variety of Reynolds welding and brazing operations. Reynolds offers welding equipment ranging from 30 to 800 amp., like the automatic fusion welding equipment shown on the opposite page capable of continuous welding up to 63 inches per minute and featuring built-in crater fillers that permit crater-free welding. Remember, too, Reynolds constant quality control minimizes "down time"—cuts your costs.

For full details on these operations and on the many other services offered by Reynolds Aluminum Fabricating Service, call your Reynolds office listed under "Aluminum" in your classified telephone directory or write Reynolds Aluminum Fabricating Service, 2056 South Ninth Street, Louisville 1, Kentucky.

# FABRICATING SERVICE

ROLL SHAPING . TUBE BENDING . WELDING . BRAZING . FINISHING

For More Information Circle No. 172 on Inquiry Card-Page 17

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# a century of experience behind the SUPERSTRONG symbol

SUPERSTRONG stands for timber reserves...saw mills ...veneer mills...wirebound, wooden and corrugated box plants...sales offices in many cities. This ownership and control of all materials and facilities — plus the tested experience and reliability of ONE HUNDRED YEARS — assure you of an ample supply of accurately designed and correctly manufactured shipping containers at all times. Be sure...specify SUPERSTRONG.

RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE - CHICAGO 8, ILLINOIS

For More Information Circle No. 173 on Inquiry Card-Page 17

## Adjustable-Speed Drives Have Wide Range



A single-groove wide-range adjustable-speed drive, made by the American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa., is available in "Q," "R," and "W" belt sections. Increased capacities of this type of drive can now transmit up to a maximum of 30 hp. The drive permits a speed variation of as much as 100% at horsepower capacities comparable to the former drives having two or three belts. Installation results in a considerable saving of space and costs as compared with multi-V-belt adjustable-speed drives.

Circle No. 47 on Inquiry Card-Page 17

## Tramrail Trolley Fits Low Headroom Situations



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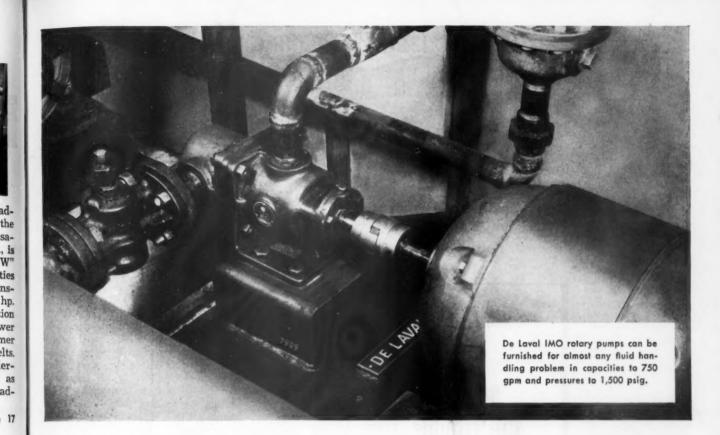
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A tramrail trolley design developed for low headroom situations is available for use with chain blocks, electric hoist and special applications. The new design enables the chain block or electric hoist to be "built-in" rather than hooksuspended from the trolley, according to the manufacturer. Clearance between trolley load-bar and track has been reduced to 1/2" while a special cross-head pin arrangement enables the trolley load bar to directly support the load unit. As a result, for the one-ton hoist, distance from track flange to the hook in uppermost position is 15", representing a headroom savings of ½-foot approximately. The unit is available for one, two and three-ton trolleys of 4 or 8-wheel design. It is made by The Forker Corp., 2054 Random Rd., Cleveland 6, Ohio.

Circle No. 48 on Inquiry Card—Page 17
For More Information Circle No. 174
on Inquiry Card—Page 17→
PURCHASING



# What to Look for in a Rotary Screw Type Pump

By W. J. Mongon, Assistant Chief Engineer
De Laval Steam Turbine Company

A sound knowledge of design, and how it affects performance, is the best insurance a buyer can have that he will get the pump he needs. This brief analysis of the IMO, a rotary three-screw pump manufactured by the De Laval Steam Turbine Company, will give you some of the necessary facts.

What qualities should you look for in a rotary type pump? It must, of course, meet specified capacities and pressures. But, it must also be efficient, operate quietly, stay on the job.

The axial flow of a screw type pump, and the resulting low inlet losses for any given pump speed, are important benefits that should be considered in making pump selections. The absence of timing gears and other mechanical features of construction also enable the De Laval IMO pump to operate at direct-connected motor and turbine speeds . . . to handle viscous liquids and high suction lifts.

One of the most important features of the IMO pump is the hydraulic turning of the idler or sealing rotors. The central or power rotor is the pumping element; the liquid pumped turns the sealing rotors.

A screw type pump is well suited for applications where pulsation-free flow is desirable. The axial flow of the liquid without trapping and the unique thread form which keeps closures fluid-tight contribute to quiet operation of the IMO pump.

7549

De Laval IMO Series A322A, a positive displacement, rotary screw type Pump, can handle capacities to 750 gpm and pressures to 150 psig.

Catalog LS gives useful application and specification data on the IMO pump. An article titled, Rotary Pumps, Basic Considerations in Their Application, contains a description of rotary pumps in general. For these publications, write on your company letterhead to De Laval Steam Turbine Company, 807 Nottingham Way, Trenton 2, New Jersey.

MAY, 1955

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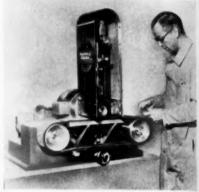
174 17→

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For More Information Circle No. 176 on Inquiry Card-Page 17

# Conveyorized Abrasive Belt Machine Has Many Uses



A small conveyorized all-purpose grinding, polishing and deburring machine is being marketed by the Curtiss Machine Corp., Jamestown, N. Y. This bench type, abrasive belt machine, model 304C, can handle all types of material at a high production rate. The drive motor for the conveyor belt is an infinitely variable speed, 3:1 ratio, 1/3 hp motor, permitting complete flexibility. It is 1½ hp and drives at 3600 rpm.

Circle No. 49 on Inquiry Card-Page 17

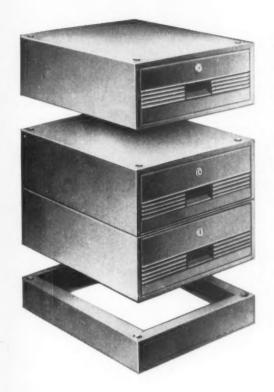
# Walkie Truck Both Telescopes and Tilts



A 1000-lb capacity, electric walkie truck is said by the manufacturer Lewis-Shepard Products Inc., Dept R-3, Watertown, Mass., to be not only the shortest but also the only truck of its type having both telescopic and tilting features. The overall length of the truck, with 24" long forks, is only 63¾". The collapsed height is 83" with a fork elevation of 130" and a wheel base of only 25". The tilt is 5" and 0° out and chisel forks 1" thick are standard. Because of its compact design, the truck operates in aisles only 64" wide with 24" long loads. The controls are located in the handle head.

Circle No. 50 on Inquiry Card-Page 17

# USE STANDARD HALLOWELL DRAWERS AND DRAWER TIERS IN PLANT MODERNIZATION



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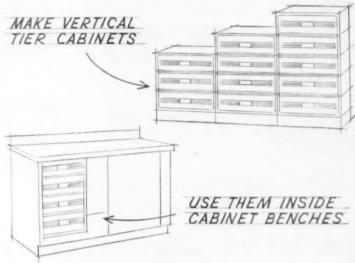
CATALOG NO. 320 - 1415

3 DRAWERS 14" x 15" x 5". OVERALL DIMENSION

OF ENCLOSURE: 15 1/4" x 15 1/4" x 6 9/32".

BASE 3 1/4" HIGH. ALSO WITH DRAWERS

1/4" x 20" x 5" AND 20" x 20" x 6"





Jenkintown 31, Pa.





Standard Interchangeable Units:
Completely Enclosed Drawers: Sturdy
Welded Construction: Stocked by
Leading Shop Equipment Dealers:
Send for Literature:
Hallowell Shop Equipment Division,
Standard Pressed Steel Co.,



BENCHES (CABINET, WORK, UNIT) • STOOLS AND CHAIRS • SHOP DESKS • TOOL STANDS AND CABINETS • DRAWERS, DRAWER TIERS • STEEL CARTS • SHELVING For More Information Circle No. 179 on Inquiry Card—Page 17





Used Laminum Shims for 15 years

# GENERAL & ELECTRIC

Used Laminum Shims for 20 years



Used Laminum Shims for 29 years



Used Laminum shims for 25 years

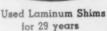




Used Laminum shims for 37 years



Used Laminum Shims for 20 years



# WORTHINGTON



Used Laminum shims for 24 years

# Ingersoll-Rand

Used Laminum shims for 25 years



# LANDIS TOOL

Used Laminum Shims for 20 years

Used Laminum shims for 20 years

Send for free catalog No obligation.



# SHIM HEADQUARTERS **SINCE 1913**

Check our Stampings Division - for short run or high production stampings.



2405 UNION STREET . GLENBROOK, CONNECTICUT

For More Information Circle No. 180 on Inquiry Card-Page 17

## Lock Nuts Change Setting of Adjusting Screw Anywhere

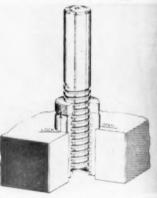




Tension lock nuts have specially designed barbs at their base to grip and hold settings on adjusting screws. Once assembled, repeated adjustments of the screw can be made with a screwdriver, without ever re-adjusting or changing the position of the tension nut. The manufacturer, The Palnut Co., 61 Cordier St., Irvington 11, N. J., has incorporated in the tension nuts a resilient spring locking action on the threads of the adjusting screw. This holds them to the adjusted position despite vibration. Screws turn smoothly with minimum wear on the threads at maximum torque, even after repeated re-adjustments. They are available in sizes for #2-56, #4-36, #6-32, #6-56 and #10-32 screw threads.

Circle No. 51 on Inquiry Card-Page 17

# Guide Pin Easily Adjusts To Die Shut Height



A removable guide pin that permits easy variable adjustment to the shut height of the die is in production by the Superior Steel Products Corp., Milwaukee, Wis. The pin is designed with a special threaded end to fit a threaded bushing. Adjustment to the die shut height is obtained by screwing the pin into the bushing to the desired height. With the pin at the proper height, it is forced down until the thread of the pin is press fit into the bushing head. A lock nut on top of bushing assures retention of the press fit at all times. Removal of pin is accomplished by releasing lock nut. Circle No. 52 on Inquiry Card-Page 17 Joe Vuille says it's simple arithmetic:
"180 cups per min. x 60 min. x 40 hours per week x 5 weeks=)

# 2,160,000 brass cups in one uninterrupted run"

For more than 20 years, Joe has been pressroom foreman of Leviton Manufacturing Company, Brooklyn, N. Y., one of the world's largest manufacturers of electrical wiring devices.

Multi-million production runs of stamped and drawn products are nothing new to Joe, but he'll admit that there's more to it than a multiplication table:

"First," says Joe, "you start with a good product design. Then the toolroom calls on its broad experience in diemaking. Next, good equipment and good housekeeping are essential in the pressroom. And then there's the brass: these extra-large coils of brass strip have to be just so... in dimension, composition, grain size, temper and surface finish...lot after lot after lot... tailor-made for the job."

Each year Leviton uses more than a million pounds of Anaconda Brass, produced to Leviton's precise specifications, "just so...lot after lot after lot...tailor-made for the job." Perhaps we can perform a similar service for you? Write to The American Brass Company, General Offices, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

You can always depend on

# ANACONDA®

copper, brass and bronze



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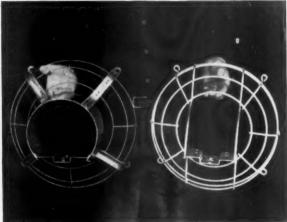
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nut.

ASING

# Most costs can be reduced! Come to Titchener!





\$1.00 PER UNIT SAVED: This motor mount was originally comprised of two separate parts—sheet steel and wire guard. To simplify assembly and reduce unit cost, the manufacturer came to Titchener. Result: the new Titchener-manufactured motor mount, right, is a single welded-wire assembly. Strip steel is eliminated, and only one assembly step is necessary.

# Take advantage of Titchener ideas

Costly products and parts for all types of industry are constantly being replaced by Titchener simplified components . . . with equal or improved reliability of performance . . . at significant cost reductions.

# We welcome the opportunity to discuss your problems with you personally.

Visit us . . . inspect our cost-cutting facilities for volume production at first hand. Our business is to help you make your product more com-

petitive in price and performance. If you find it impossible to come to Titchener personally, write us about your problem. Send prints or samples. You'll receive a complete cost analysis

plus cost-cutting suggestions. Production quotations included. A full size sample can be made at your request. Your information re-WIRE mains confidential.

A few of the many firms which have recently bene-fitted from a trip to

- Surface Combustion Corporation
- . I.B.M. Corporation
- Daystrom Furniture Company

General Electric



itchener & Co.

77 Clinton St., Binghamton, N. Y.

FREE ... new booklet; "How Wire Construction Reduces Costs"

A brand new study.

"Before" and "After"
illustrations of 36 products, with specific details on how Titchener suggestions enable manufacturers to cut costs and improve their product. Just mail the

E. H. Titchener & Co.

GOODS

Headquarters

92 Clinton St., Binghamton, N. Y.

Please forward my copy of the free "HOW" booklet showing how wire redesign by Titchener cuts costs.

Company...

For More Information Circle No. 182 on Inquiry Card-Page 17

## Grinder Perimeter Speed of More Than 3 Miles Per Min.



Through the development of a method of processing special abrasive coated cloth discs, New Era Engineering Co., 458 West 29th St., Chicago 16, Ill., claims to have produced a grinder that operates at a perimeter speed of more than 18,000 feet per minute. It is a 20" diam double disc machine. It is powered with a special 10 hp motor, fully adequate to handle heaviest material removal without reducing disc speed. It is direct driven, and supplied in 220 or 440 v, 60 cycle. Circle No. 53 on Inquiry Card-Page 17

# More Compact F. H. P. Motors



Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa., announces a line of fractional hp motors in the NEMA 48-frame size. They range in rating from 1/6th through 1/3rd hp. On single phase motors, a unique terminal board design permits change of voltage or motor reversal by interchanging quickdisconnect plugs in the motor conduit box. This simplifies the wiring of the motor to the power source and effectively increases the net usable area for wiring purposes. New sleeve bearing construction provides lubrication and nylon thrust washers to permit a variety of mounting positions. The motor will be available in both resilient and rigid mountings.

Circle No. 54 on Inquiry Card-Page 17



# Long Distance doesn't cost



# it pays

In this era of high overhead and increasing competition, wise purchasing means profit. Missed delivery dates — wrong quantities — short supply — large inventories all cut deeply into profits.

By using Long Distance systematically, you can order materials as they're needed—at the right price—in the right quantity—at the right time.

With Long Distance you can control shipments under way by verbal orders and you can "shop the market" without leaving your desk.

We have a number of specific plans for the profitable use of Long Distance in purchasing. A call to your Bell Telephone Business Office will bring a representative to discuss them with you.

#### BELL TELEPHONE SYSTEM



#### LONG DISTANCE RATES ARE LOW

Here are some examples:

Baltimore to Philadelphia . . . . 55¢
Cleveland to Pittsburgh . . . . 60¢
Atlanta to Indianapolis . . . . \$1.15
Chicago to New York . . . . . \$1.50
Los Angeles to Washington . . . \$2.50

These are the daytime Station-to-Station rates for the first three minutes. They do not include the 10% federal excise tax.

Call by Number. It's Twice as Fast.

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ASING

# CONTROL ...

# the Key to Cleaning Economy

When a cleaning solution unexpectedly loses its punch . . . when parts start coming out half-clean, and costly rejects begin piling up . . . any number of factors might be responsible. Of course, the quality of a detergent can directly affect solution life. That's why every Oakite cleaner is carefully compounded with the finest ingredients available. But equally critical to cleaning efficiency is accurate control of such important variables as temperature, concentration, and pH. —That's where Oakite's personalized tank-side service can contribute so much to the effectiveness and economy of your cleaning program.

In order to assure maximum efficiency of every Oakite solution, your Oakite Technical Service Representative has numerous control devices available to regular Oakite users. Here, for example, are just a few of the many Oakite aids that take the guess-work out of cleaning.

Oakite Regulators: for constantly maintaining correct solution strength by adding pre-dissolved detergents when needed.

Oakite Titrating Kits: for chemically testing the specific strength of Oakite cleaning solutions.

Oakite Heat-Clean Meters: for visually determining the temperature of an Oakite solution at any given time.

Oakite pH Test Papers: for instantly telling the degree of acidity or alkalinity of any Oakite solution.

These, and many other Oakite control devices, are freely loaned to regular Oakite users when applicable. They are just one phase of the comprehensive Oakite tank-side service—especially designed to give you perfect cleaning results at minimum cost. Call your local Oakite Man today for more details on how Oakite specialized materials and methods can save you time and dollars. No obligation. Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Circle No. 184 on Inquiry Card-Page 17

#### Concrete, Cinder Blocks Handled Without Pallets



A multiple fork attachment is said to make possible the palletless handling of standard concrete or cinder blocks. These multiple forks eliminate the necessity for pallets or skids by utilizing the bottom layer of blocks to support the load by entrance of the forks through the block cavities. The fork mounting is designed to allow a one inch side motion of each fork independently, left or right, in order to avoid chipping or breakage of blocks. A special design incorporating surface plates enables the load to be securely carried against the fork backs. The attachment is made by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. Circle No. 55 on Inquiry Card—Page 17

# Welder Holds Short Arcs With Deep Penetration



In production by General Electric, York, Pa., is a new 300-amp, rectifier type welder. It features quiet operation and low maintenance cost. It offers full time arc force control for holding very short arcs with deep penetration. A current range of 20 to 375 amps is provided. It utilizes the moving primary coil design, obtaining current adjustments by separation of primary and secondary coils to achieve stepless current control and accurate amperage settings. Designated 6WR30B, it is available for 220/440 or 550 v operation.

Circle No. 56 on Inquiry Card-Page 17

# FACTS ABOUT IS



DO A GUANTOS WORKS
AT LOWEST COST WITH EXIDE-IRONCLADS

STEEL MILLS USE GIANT EXIDE-POWERED RAM TRUCKS TO HANDLE HUGE COILS OF SHEET STEEL WEIGHING AS MUCH AS 30 TONS EACH. THEY WORK FULL-SHIFT, WITHOUT COSTLY DOWN-TIME DELAYS, AROUND THE CLOCK. THE DEPENDABILITY AND LONG USEFUL LIFE OF EXIDE-IRONCLADS RESULT IN LOWEST HANDLING COSTS PER TON. THEY ARE YOUR BEST HEAVY DUTY POWER BUY-AT ANY PRICE!

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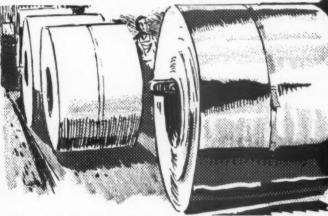
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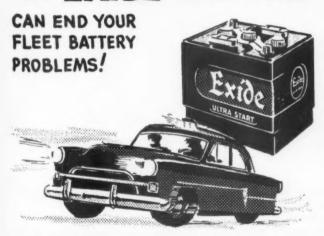
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THE BATTERY THAT OUTLASTS THEM
ALL IN TAXIS AND POLICE CARS
THE DESCRIPTION OF THE PROPERTY OF



THE ULTRA START IS THE MIRACLE BATTERY MADE BY EXIDE TO GIVE LONGEST LIFE, INCREASED CAPACITY AND STARTING POWER. IN ACTUAL POLICE CAR OPERATION, ULTRA STARTS HAVE GONE AS FAR AS 170, 875 MILES (THE EQUIVALENT OF 17 YEARS' AVERAGE DRIVING) WITHOUT RECHARGING! A GOOD REASON FOR EQUIPPING YOUR FLEET CARS WITH 6 AND 12 VOLT ULTRA STARTS!



"ANY ICE TODAY, LADY?"

TRAVEL COMFORT IN 1876 WAS AIDED BY THE TRAIN BOY WITH HIS CAN OF ICE WATER, "AIR CONDITIONING" CAME THROUGH THE WINDOW. LIGHTING WAS INADEQUATE AND DANGEROUS. IT'S ALL DIFFERENT NOW, WITH HELP FROM EXIDES - MR. AVERAGE PASSENGER RIDES IN WELL-LIGHTED, COMFORTABLY AIR CONDITIONED CARS.

**FLASII**!

EXIDE ANNOUNCES THE NEW EH IRONCLAD-A CAR LIGHTING AND AIR CONDITIONING BATTERY THAT SETS A NEW HIGHER STANDARD FOR THE RAILROAD INDUSTRY. THE EH GIVES FULL RATED POWER INITIALLY - FULL RATED POWER FOR A LONGER WORKING LIFE! WRITE FOR SPECIFICATIONS!

ALL EXIDE BATTERIES ARE BUILT TO GIVE YOU LONGER LIFE AND GREATER POWER. LET AN EXIDE SALES ENGINEER SHOW YOU HOW EXIDES CAN IMPROVE YOUR OPERATIONS, CUT COSTS, PROTECT YOUR BUSINESS.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

For More Information Circle No. 187 on Inquiry Card-Page 17

MAY, 1955

159

Exide



WITT CANS and PAILS are guaranteed to outlast 3 to 5 of the ordinary kind. Yet, in 54 years, not one guarantee claim has been reported. It's no wonder, for today many WITT CANS and PAILS are still in excellent condition after five, ten, fifteen or even more years of service. Generations of satisfied users report that a WITT survives severe treatment that soon wrecks the ordinary container. They prefer WITT as the best buy, regardless of price.

Choose the cans and pails that are designed to last longer . . . constructed to survive the most rugged use and abuse . . . GUARANTEED to last . . . WITT CANS and PAILS!

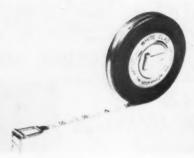


"Originators of the Corrugated Can"

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For More Information Circle No. 188 on Inquiry Card—Page 17

#### Measuring Tape



Long steel tapes are furnished by the Lufkin Rule Co., Saginaw, Mich., in four lengths, 25, 50, 75 and 100 feet. The tape has a triple baked white finish and a coating of clear, abrasive resistant plastic over a bonderized, tempered steel line. Jet black markings are graduated to ½" with both feet and inches marked every inch.

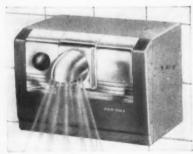
Circle No. 57 on Inquiry Card-Page 17

# Bus Duct With Adjustable Fitting

Introduced by the Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa., an adjustable straight length of bus duct can be lengthened or shortened on the job by as much as six inches. The new fitting facilitates the layout and installation of bus duct by decreasing the precision required for good results. Plug-in duct fittings are rated up to 1500 amp in copper, 1000 amp in aluminum.

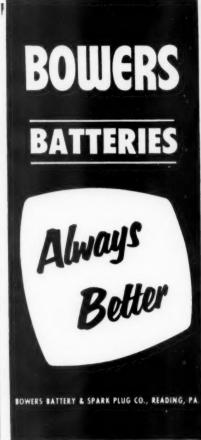
Circle No. 58 on Inquiry Card-Page 17

## Dryers Eliminate Washroom Hand Towel Costs



The Michael Electric Co., Inc., P. O. Box 141, New Haven, Conn., says that its line of electrical dryers is available in three pastel colors and is equipped with an automatic 30-second push button timer which may be turned on with finger or elbow pressure to release a quickdrying air current. Ideal for plant rest rooms, the automatic dryers eliminate unnecessary janitor expense, towel costs or extra plumbing repairs.

Circle No. 59 on Inquiry Card-Page 17



For More Information Circle No. 189 on Inquiry Card—Page 17

# The big difference in plywoods:

All exterior fir plywoods are bonded with waterproof glues. The difference—that shows up in use—is in hidden construction *inside* the panel. Only Harborite and SUPER-Harbord are made with these 5 important advantages:



- Only carefully selected veneers are used. Means more durability.
   Conveneers machine edged and
- Core veneers machine-edged and butted flush. No trouble-making core gaps.
- Inner core flaws are removed, patched with wood plugs. Solid throughout.
- Rehumidified to restore natural moisture. Minimizes warping and grain raise.
- 5. Harborite overlay is hard. smooth, wears like glass, Abrasion and acid resistant. Won't splinter or snag.

If you need plywood for boat hulls or concrete forms, assembly tables or partitions, or any of thousands of industrial uses, specify the best:



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Developed in 1938 and manufactured only by

# HARBOR PLYWOOD CORPORATION Aberdeen, Washington

Sales offices or subsidiaries In Aberdeen, Atlanta, Chicago, Cincinnati, Houston, Indianapolis, Jacksonville, Los Angeles, Oakland, San Francisco, Seattle and Tampa.

For More Information Circle No. 190 on Inquiry Card—Page 17 For More Information Circle No. 191

on Inquiry Card—Page 17→

# Motions cost money



--- Save with

# SHIS

-Pre-assembled screw and lock washer

No more putting lock washers on screws by hand! Deliver SEMS to the assembly line and save motions. SEMS are pre-assembled screws and lock washers—two units handle as one, driving is easier, faster and the pre-assembled lock washers can't drop off! Try SEMS and see the difference.

# 36 sources

READY TO SERVE YOU NOW

READY TO SERVE YOU NOW
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THE BLAKE & JOHNSON CO. Waterville 14, Connection
BUTCHER & HART MFG. CO. Alloone, Pen
CANADA ILLINOIS TOOLS LTD. Toronto, Ont., Cond.
CENTRAL SCREW COMPANY Chicago 9, Illinois
CLEVELAND CAP SCREW CO. Cleveland 4, Ob
CONNECTICUT SCREW & RIVET CO., INC., Waterbury 20, Connectic
CONTINENTAL SCREW CO. New Bedfard, Men
EATON MANUFACTURING CO.  Reliance Division, Massillan, Ob
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MIDLAND SCREW CORP. Chicago 32, Illia
NATIONAL LOCK COMPANY Rockford, Illie
THE NATIONAL SCREW & MFG. CO. Cleveland 4, Ohio
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SHAKEPROOF® LOCK WASHERS SPECIALLY DESIGNED FOR SEMS

When you order SEMS, get the nighest tocking efficiency by specifying SHAKEPROOF® Lock Washers, the only lock washers with tapered-twisted teeth and specially designed for SEMS.

SEMS is a development of Illinois Tool Works, Chicago



...cool water, that is—the kind that comes from an attractive Cordley Cooler to please and refresh employees, build morale, efficiency.

# AND THE HOT TIP

Cordley is built to last and last. It has 18 important premium features —more than any other single make. But the best news about the sturdy Cordley is that it's backed by the most generous 5-YEAR GUARANTY in the whole industry. Of course, the way Cordley Coolers are built, you'll get many more years of trouble-free water service.

Sø, if you're cooler conscious right now, you owe it to yourself (and your company) to investigate Cordley—the name that has appeared on more than a million water coolers sold throughout the world.

FREE! Write today for Bulletin Q-4 describing the wonderful new line of economical Cordley Electric Water Coolers.

# CORDLEY & HAYES

Specialists in Water Coolers Since 1889

443 Fourth Ave., New York 16, N. Y.

For More Information Circle No. 192 on Inquiry Card—Page 17

## Thermostatic Pilot Controls Liquid, Air Temperatures

An unusually small sized, rugged thermostatic pilot controller has been developed by Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Box 400, Knoxville 1, Tenn. It measures only 3-13/16" in width but provides accurate temperature control of liquids or air, when used in conjunction with valves, dampers and other controls. It is readily employed in control systems of electroplating tanks, dyeing and bleaching machinery, chemical vats, etc. It is designed for temperatures in wide adjustable ranges from 50 F to 250 F and from 150 F to 350 F. Circle No. 60 on Inquiry Card-Page 17

# Helical Milling Cutters



Carbide tipped helical milling cutters, just introduced on the market, are said to combine the advantages of preform true helical carbide tips and true helical seat pockets. The carbide inserts are the entire length of the flutes. This maintains shear cutting action constantly the full depth of the cut. Superior finishes are obtained with 25% to 30% less hp and 2 to 3 times longer tool life. They are made by Union Twist Drill Co., Athol, Mass.

Circle No. 61 on Inquiry Card-Page 17

# Synchronizing Sheet Cutting, Handling

The Fried Steel Equipment Mfg. Corp., 528 E. 119th St., New York 35, N.Y., announces two materials handling devices: a strip stacker and a scrap eliminator. The two attachments, when used with any of three machines used in sheet shearing operations, are said to synchronize cutting and handling. They save time and labor by allowing a single operator to handle everything shearing operation, during the movement of the sheet and discard of trims. The strip-stacker receives cut material as it is delivered from the shear bed, stacks it in dollies, then stores it aside. The scrap eliminator, by means of a teeter-table, allows the operator to reject scrap at a glance.

Circle No. 62 on Inquiry Card-Page 17



For More Information Circle No. 193 on Inquiry Card—Page 17
For More Information Circle No. 194

More Information Circle No. 199 on Inquiry Card—Page 17→ PURCHASING

162



with
CONTINENTAL
fine wire mechanical
pencil lead plungers

Autopoint is just one of many fine-wire users who have found that Continental fine-wire performs to the exact specifications for which it is designed. It takes real application engineering to enable Continental to stand behind the promise that the wire must be right for a particular product—for it's made right. More than a half century of wire making means that Continental can bring valuable case histories and invaluable research and testing to bear on your wire problems. Call or write us at Kokomo for the help you need.

Autopoint's patented "Grip-Tite" tip through which the Continental wire plunger expels the lead for perfect writing.



Some of the Many Uses made of CONTINENTAL WIRE

Continental Coil Binding Wire...
Braces for Automobile
Fenders...Steering Wheel Inserts
...Wheel Spokes for Toys and
Wagons...Yoke Wrapping for TV
Picture Tubes...Heavy Wire
for Hose Reels...Trash Burners...
Wire for Stapling...Paper Clips
...Metal Fasteners...Florist Wire



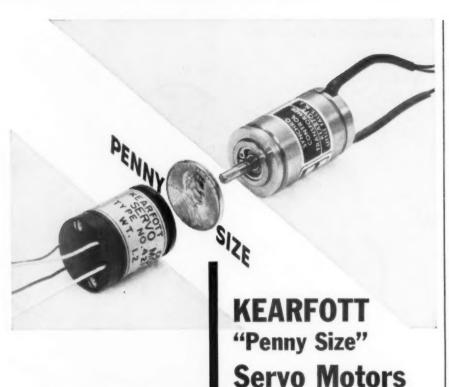
The gth lear full shes less life. Orill

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CONTINENTAL
STEEL CORPORATION · KOKOMO, INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Copered, Tinned, Annealed, Liquor Finished, Bright, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.



and

Lighter, more compact Servo Systems

Kearfott developed components to fill the need today, for tomorrow's Servo Systems.

#### SERVO MOTORS

- ¾" Diameter x 1.5" long .33 in. oz. Stall Torque 6500 RPM, 26 Volt 400 Cycle
- ¾" Diameter x .937" long .10 in. oz. Stall Torque 6500 RPM, 26 Volt 400 Cycle

#### **SYNCHROS**

**Synchros** 

• 3/4" Diameter x 1.240" long Transmitter, Control Transformers, Resolvers and Differentials 10 minute maximum error, 26 volt, 400 cycle excitation

Straight thru bore and potted stator construction provide environmental resistance and high order of performance to these Motors and Synchros. Technical data sheets sent on request.

#### **KEARFOTT COMPONENTS** INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.

#### **ENGINEERS:**

Many opportunities in the above fields are open-please write for details



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#### KEARFOTT COMPANY, INC., LITTLE FALLS, N. J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N. J. Midwest Office: 188 W. Randolph Street, Chicago, III. South Central Office: 6115 Denton Drive, Dallas, Texas West Coast Office: 253 N. Vinedo Avenue, Pasadena, Calif.

For More Information Circle No. 196 on Inquiry Card-Page 17

# Stock Cart Won't Tip Going On or Off Ramps



A versatile stock and production line cart for parts manufacturers, assembly plants, etc., has a six wheel design which prevents accidental tipping in going on or off ramps. Constructed of aluminum or steel, it is equipped with special front and rear rubber-tired swivel casters to permit easy steering and turning in crowded places. Standard construction measurements are 19" in width for narrow aisles 50" in height, and approximately 53" in length. Manufacturer is Crescent Metal Products Inc., 18901 St. Clair Ave., Cleveland 10, Ohio.

Circle No. 63 on Inquiry Card-Page 17

#### Gives Spring-Making Industry More Production



A spring making machine that can handle .008" to .028" wire ranging up to 24" in finished length is claimed to give the spring-making increased production, industry faster setup and greater accuracy. The new machine is designed to produce from 24 to 243 springs per minute with a motorized variable speed transmission (1/2 hp) and from 21 to 240 springs per minute with an electronic (34 hp) adjustable speed drive. Outside diameter of the machine's coils range from 1/16" to 7/8". Manufacturer is Torrington Mfg. Co., Torrington, Conn. Circle No. 64 on Inquiry Card-Page 17

# Office Equipment and Supplies section of PURCHASING Magazine

MAY, 1955

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SING

Individual styling is the kepate of many suites for today's executives. This group, styled by Mary V. Laring and manufactured by the Jasper Desk Co., is representative of the modern styling in office familiare.



# OFFICE EQUIPMENT

# News



Self-Guide, a product of the Wassell Organization, Westport, Conn., is a solution to the problem of indexing tab cards. It eliminates pulling indices before putting the cards through tab machines and replacing them afterwards. The indices are, themselves, regular tab cards. The tab cards, except those that serve as indices, are notched at the base. Present filing equipment can be equipped with twin rails which allow the corner-cut tab cards to settle down on the notches, leaving the indices higher by ¼".

Circle No. 65 on Inquiry Card-Page 17

To speed sorting of cancelled checks for users of tabulating machines, a new needle sorted continuous payroll check form is being manufactured by the American Lithofold Corp., St. Louis. Especially suited for continuous payroll forms, the new punched pay check is run on a tabulating machine. The payroll is then listed on prenumbered payroll register sheets. As the checks come off the tabulating machines, they are broken apart and stacked in numerical sequence. Each group of 40 checks is matched to a page of the register and inserted into a "groover" which permanently notches them for needle sorting. On return, the checks are matched by notches and thus sorted by page number.

Circle No. 66 on Inquiry Card-Page 17

The Elbe File & Binder Co., Inc., Fall River, Mass., now has a postal manual loose-leaf binder which accommodates the postal manual and supplements as furnished by the U. S. Government Printing Office. The design permits the pages to fall open in a natural "V", with the binder serving as its own pedestal. It is covered with stout, black, Colonial, imitation leather and has continuous heavy nickel-plated cover hinges. It is approved by the U. S. Post Office Department.

Circle No. 67 on Inquiry Card-Page 17



A dry copying machine has been announced by Minnesota Mining and Manufacturing Co., St. Paul. Called the "Secretary", it is only 17" long, 17" wide by 9" high. It operates on any 110-volt, AC outlet and produces a copy in about 4 seconds. There are no liquid, negatives or master copies involved.

Circle No. 68 on Inquiry Card-Page 17

Cordley & Hayes, New York, is introducing its new line of electric water coolers. Its new triple-effect cooling system first precools the incoming tap water, then flash cools it and finally chills it in storage. The coolers also feature dual hand and foot controls, and thermostatic protection for the storage system as well as thermostatic control of drinking water temperature. Seven new models are listed; five air cooled and two water cooled. Capacities range from 5 to 27 gallons per hour.

Circle No. 69 on Inquiry Card-Page 17



The Comptograph "202", a new 10-key adding-calculating machine, is being introduced by Felt & Tarrant Mfg. Co., Chicago. An exclusive feature of the machine is the Visi-Balance window which shows the accumulated balance at all times. When the value is debit, the word "positive" appears in the window. When the accumulated value becomes a credit, the word "negative" appears. The Comptograph operates at the rate of 202 printing per minute. All debit items, including subtotals and totals are printed in black; credit items, subtotals and totals in red. The machine operates on 110 volt AC or DC current.

Circle No. 70 on Inquiry Card-Page 17

A new Thin-Lite series of luminaire is being marketed by Lighting Products Inc., Highland Park, Ill. The series consists of four different luminaires, each model having a depth of only 25%". Two luminaires are 49" in length and two units are 97" long. In each length there is a two-lamp model, 12¼" wide and a four-lamp model, 26¾" wide.

Circle No. 71 on Inquiry Card-Page 17

Haloid Co., Rochester, N. Y., is marketing a new piece of xerographic copying equipment. Called the Model 1218, it will reduce engineering drawings up to 24" x 36" onto a 12" x 18 paper master and make possible 100 copies in about 5 minutes.

Circle No. 72 on Inquiry Card—Page 17 (Please turn to page 174)





# For draftsmen architects artists engineers

With the New Carter Squeeze Bottle it's much easier to fill your pens and instruments. You'll wonder why the Carter Squeeze Bottle didn't happen before.

You can leave the cap off the bottle all day without fear of spilling . . . or breaking.

Try Carter's Squeeze Bottle yourself . . . try it free of charge. Just fill out the coupon below.

# **Exclusive** pinpoint applicator

- Speeds up pen or instrument filling.
- Prevents spilling or drying out
- Applies just the right amount of ink
- Uses up the last drop of ink

#### New, Electro-Polarized ink

- No shaking necessary.
   Electro-polarized to prevent settling. Uniform color throughout bottle ... no thickening.
- Completely opaque, uniformly black

   makes clean-cut lines and details without doubling back. No grey areas, no chipping or peeling.

Be Smarter Buy Carter's

# Free Sample

mail coupon . . .

The Carter's Ink Company, Dept. B-5 Cambridge 42, Boston, Massachusetts

Please send me a FREE sample bottle of Carter's New Squeeze Bottle India Ink.

Name \_\_\_\_\_

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ASING



A beautiful executive suite with matching units was part of the display of the Leopold Company at the recent National Office Furniture Association convention and exhibit.

# Today's Office Furniture Smart, Modern, Functional

By G. H. Gutekunst, Jr.

N more and more ways, modern offices are developing individual "personalities" through more liberal use of color and a broader application of modern styling in furniture. Such was the evidence at the recent convention and exhibition of the National Office Furniture Association held in Chicago.

The movement toward modern styling and design is something most everyone has been

aware of, during the past few years. Actually, it is something that has been snowballing along since the introduction of color many years ago. But, it has been a trend that has gained more and more impetus with each succeeding year.

Perhaps the most significant point indicated at this year's NOFA show is the broadening of modular unit design to include the executive furniture classification. While modulars them-



Interested visitors examine the unique lamps of the M. G. Wheeler Co.

A York safe, suspended by shining "gold" chains supported on "pillars" of file drawers, was the central point of one of the NOFA boothes.

selves are not exactly new, it has been only during the past few years that the versatile furniture has made its mark in the trade. As office costs went up, the cost saving factor through more efficient use of available floor space made modulars more attractive. As more modulars were sold, more variations and styles were developed. Now, as the NOFA show pointed out, modular furniture is here to stay and may even, now, become an attractive base for the executive office.

Another interesting fact seen at the furniture exhibit lies in the category of furniture developed mainly for reception areas. Here, (Please turn to page 172)





Modern styling and the use of modern colors drew visitors to the display of Knoll Associates.



furnishings are aimed for double duty. Desks are made to look less like desks and yet retain the functional value of that type of furniture. Comfortable chairs couches are making much wider use of newly developed covering materials and "stuffing" for longer life. Also, as with the other items, color plays a significant part, with pastels predominating.

Matched suites for executives provided a "magnetic" attraction for visitors to the show. Exquisitely grained woods, styled in an almost 'personal" fashion, produced outstanding combinations of desks, credenzas, bookcases, etc. Part of the attractiveness of these furnishings was in the careful matching of grain in panels that formed patterns on the tops of desks, tables, etc. Also, the selection of fine woods and their finishes—natural, bleached, blond, etc.—contributed toward beautiful executive suites.

#### More Desk in Less Space

Moving into the less "exclusive" category, the office furniture buyer will find that desks, chairs, files, etc. for the general office are continuing along the line of modern styling so evident during the past five or six years. Of importance, too, is the manufacturers' efforts to produce "more desk in less space". In other words, more efficient design and the use of a variety of drawertypes for pedestals makes it possible to more easily prepare a desk for an specific job. This cuts down, to some degree on special auxiliary equipment, although of course it cannot do away with desk-side files,

On the subject of files, as a matter of fact, manufacturers are devoting much of their effort, now, toward refinements. More drawers in less space, a development evidenced in last year's National Business Show in New York, is a feature that has been working its way through the

Other factors are; more easily operated drawers, better means of folder suspensions, use of color, and even the indenting of the files bottom panel to keep the file clerk from banging toes on the bottom of the equipment.

For big office safes, most of features seem to be in more economical and practical interior arrangements. This, of course, is coupled with a more streamlined exterior appearance. At one booth in the

(Please turn to page 174)



to know more about long-life performance from metal office equipment.



# THREE PURCHASING DEPARTMENT PROCEDURES SAVE YOU TIME...MONEY!

# Increase The Efficiency of Your Purchasing Department

This 20-page, full-color manual pictures in detail the most modern, proved administrative control systems for purchasing. It shows many ways in which the efficiency of a Purchasing Department may be increased. See and

examine the methods used by some of the country's leading firms...when bids are needed ... when placing a purchase order... when following up a purchase order... and so on.

FOR YOUR COPY - SIMPLY CIRCLE X1202





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# New Purchase Order System Simplifies Procedures...Quickly Pays For Itself

Southern Railway has greatly simplified its purchasing procedures, reduced costs, eliminated loss of time and cut personnel turnover. How? With a new system which relies on a separate Remington Rand Visible-Tip Folder for each active order. Now it is possible to get from the order clerk, immediately, a complete picture on any order...number of items bought...prices paid ...length of time for delivery...facts on the status of the order. The clerk needn't leave the desk! CIRCLE SN768.

# Improved Follow-Up Control Results in Office Time Saving of 80%

The Machinery Division of Dravo Corp., Pittsburgh, Pa., currently issue about 15,000 purchase orders a year. In the past, follow-through was based on regular paper copies of the orders, which were kept in standard vertical files. Each time reference was necessary, the clerk would remove the order copy from the file, bring it to the proper desk, subsequently refile it. Now, this time-consuming, laborious procedure is eliminated...with an estimated time saving of 80%. The follow-up copies of the regular set of purchase forms are Kardex forms which remain in four Mobile Kardex cabinets. He refers instantly to the order copy, takes indicated action and makes proper notations without removing the card.

FOR DETAILS OF THIS PROCEDURE, SEE CH954



# Traveling Requisition Simplifies and Speeds Purchasing

One of the most effective means of simplifying and speeding purchasing developed in recent years is the visible inventory control system that provides a traveling requisition. Clerks don't have to transcribe an order from an inventory card to a requisition blank. The top card of the inventory pocket, when removed, serves as the requisition. It saves much time because all information concerning suppliers, cost, previous orders placed, past usage, present inventory and other facts required for executive decision are contained right on the form. After the replenishment order is written, it is routed back to the inventory pocket for continued use.

GET FULL PARTICULARS - CIRCLE KD375

Remington Rand

Kindly circ	le the literal	ure you de	sire:
SN768	X1202 CH954	KI	375
Name			
Title			
Firm			
Address			
City	Zone	_State	

For More Information Circle No. 199 on Inquiry Card-Page 17



You can't go wrong on this guaranteed\* desk set... with its giant ink fountain-base that automatically fills the pen and keeps it ready to write a full page or more whenever you take it from its socket.

\* 30-DAY MONEY-BACK TRIAL OFFER

Your regular dealer will be glad to let you try one of these fine Model 444, Self-Filling Desk Pens on your own desk for 30 days with the understanding you can return it for a full refund if you don't agree it's the best you've ever used.

CHOOSE THE RIGHT POINT FOR THE WAY YOU WRITE...BY NUMBER

Pine writing 2556 Bookkeeping 2550 Medium stub

9314M ... Carbon copies (Also public counter use) 9460

Extra Fine 9550 General writing

Esterbrook

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For More Information Circle No. 200 on Inquiry Card-Page 17

(Continued from page 172)

show was a line of safes in pastel colors—coral, pink, green, etc. These were for the show only, but with the continued trend in color, perhaps they were harbingers of what is to be in safes.

Accessory items, too, were in evidence at the show. Things such as ash trays and lamps were given prime attention by many of the shows' visitors. Here, too, as in all other office furnishings, the modern "home-like" quality had its effect In the matter of lighting, naturally, more attention was devoted to the improvement of seeing qualities rather than the esthetic value of the lamps. That the manufacturers produced esthetic as well as practical value, is only more indicative of the general movement toward "smartness" in furnishing the office.

It is apparent, after analyzing the variety of equipment at the NOFA show, that today's sales are developing in those items that combine practical value with beauty. In other words, buying office furnishings or furniture, today, is based on three primary points—smartness, modern styling, and sound functional value.

From the equipment displayed in Chicago, today's office equipment buyer has plenty to chose from and plenty of new thoughts and ideas with which to contend.

(Continued from page 168)



A new electrified rotary card index file, called the "Kard-Veyer", has been developed by Remington Rand Inc., New York, for rapid reference and posting operations. The Kard-Veyer contains movable shelves which travel from either direction, bringing the required tray to the reference area from either above or below, stopping at posting level by automatic leveling. Automatic leveling, shorter crosswise trays, two-directional carrier travel and a rapid-action circuit system provide smoother, faster automatic filing with noiseless operation. The machine is described in Remington Rand's folder LBV 706.

Circle No. 73 on Inquiry Card-Page 17

# VELVET · ball PEN · cil the pencil that writes with ink · lightweight and well-balanced for greater writing ease writes better and faster . . . never grows shorter · won't leak, blot, flood, smear . . . never needs refilling · filled with permanent, non-fade ink that's banker approved VELVETS · nothing to turn, push or click ... new are ink-control insures instant nationally starting advertised every office in needs BOTH VELVETS\* exclusive Velvet homogenized process produces finer, perfectly mixed lead . . . clearer, blacker lines · smoother writing with no hard spots, no soft spots · stronger because exclusive Pressure-Proofing clinches wood to lead, ends internal breaking · for the money, the finest pencils you can buy **VELVET** pen the pencil that writes with homogenized lead American Pencil Co., Hoboken, N. J. of fine craftsmanship \*Write for free Velvet sample kit

For More Information Circle No. 201 on Inquiry Card-Page 17

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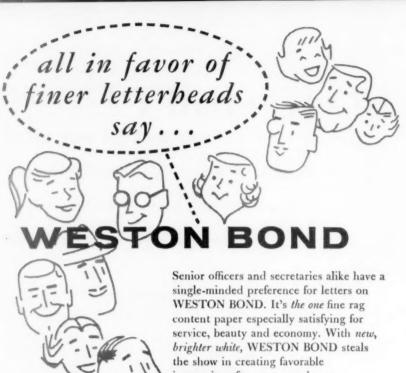
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or order from your commercial stationer.



impressions for correspondence.

Hadn't you better use it, too? Just ask your printer for WESTON BOND. He'll heartily favor your choice! Matching envelopes available, of course.

free: Sample Book. Write Dept. PN

#### BYRON WESTON COMPANY, DALTON, MASSACHUSETTS

Makers of Fine Papers for Business Records Since 1863 For More Information Circle No. 210 on Inquiry Card-Page 17 The McBee Co., a division of Royal McBee Corp. has transferred its general sales headquarters from New York City to Athens, Ohio, where the firm's home office is located. Principally affected by the move are: E. H. Gibson, general sales manager; R. J. L. Lee, sales promotion manager; R. C. Mc-Cormick, manager of customer rela-

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John C. Kern has been named marketing research manager for the Mc-Bee Division, Royal McBee Corp., New York. Mr. Kern joined the McBee Co. in 1953, following three years on the staff of the division of industrial cooperation at the Massachusetts Institute of Technology.

Making a nation-wide tour of more than 50 key cities is a traveling exhibit of the latest forms, methods and equipment for today's automatic offices produced by Moore Business Forms, Inc., Niagara Falls, N. Y. Called Formor-ama, it consists of seven individual units, each covering a separate phase of business record operations. Included in the displays are such items as imprinters, decollators, detachers, registers, vertical spacers, carbon savers, typeliners, form holders, check holders, label cutters and other similar de-



new development in pencil sharpener

maintenance . . . The "complete" cutter head assembly.

Now, in one convenient, clean operation, office personnel can revitalize their pencil sharpeners in seconds. Order an adequate supply from your stationer today.

Specify, too, Apsco Pencil Sharpeners, Staplers, and Punches. It costs less to buy the best.





# Apsco products inc.

P.O. Box 840 Beverly Hills, Calif. Factories: Rockford, Ill. . Toronto, Canada

For More Information Circle No. 202 on Inquiry Card-Page 17 176



Don't say it! Rid your office of "scatteration filing" with ACCObinding. Keep all related correspondence, invoices, reports and other papers safely, securely bound in Accobind Folders or Accopress Binders. Last for years. Sizes for all needs. Ask your stationer.

# ACCO PRODUCTS, INC.

OGDENSBURG, N. Y. In Canada: Acco Canadian Co., Ltd., Toronto

For More Information Circle No. 203 on Inquiry Card-Page 17 PURCHASING



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"Meteor" and "Astra-Lite", two new series of modern, shallow Fleur-O-Lier luminaires have been announced by Metalcraft Products Co., Philadelphia. Design of both fixtures is marked by the extremely shallow body, which measures only 41/2" over-all, including louvre assembly and ballast. Both are available in general diffuse, direct and semi-direct types, slimline and rapid start, 2 and 4 lamp, in 4, 6, and 8 foot lengths. Side shielding is of metal or plastic. Louvres are standard equipment: Astra-Lite also can be installed as an open bottom luminaire without louvres. Constructed of 18 and 20 gauge metal, the luminaires have a permanently bonded high reflectance finish, with a minimum reflectance factor of 86%.

Circle No. 75 on Inquiry Card-Page 17





Monroe Calculating Machine Co., Inc., Orange, N. J., is now marketing 14 different models of punched-tape bookkeeping machines and 20 models of punched-tape adding machines. The Monroe Auto-Punch Bookkeeping Machine automatically duplicates postings in a perforated tape which can be fed directly into other office machines such as the teletype, the tape-to-card punch or the Flexowriter. The Auto-Punch can control any 5, 6, 7, or 8 channel equipment. Monroe's Auto-Punch Adding Machine operates as a regular fullkeyboard adding machine. Simultaneously with the printing of figures on standard adding machine paper or wide forms, it automatically punches and codes in 5, 6, 7, or 8 channel tape. A high-speed machine, it perforates at the rate of 1,800 digits per minute.

Circle No. 76 on Inquiry Card-Page 17



# Who gets excited about Carbon Paper?



She does! The Secretary who uses Webster MultiKopy Durametric Carbon Paper knows that there are benefits for her built into every sheet. Especially the Micrometric Scale Edge! This uncoated edge measures the lines of space on a page — helps end "running over" and protects her fingers from carbon smudge. And Webster Shurflat formula, backing each sheet, prevents curling.



He does! Purchasing agents and office managers know that the balanced construction of Webster Durametric means extra wear for each sheet — real economy where it counts. Webster Durametric improves appearance, speeds up typing output and cuts down waste of materials. There is no better buy for discriminating purchasers.



We do! The F. S. Webster Company, pioneer in the carbon paper and ribbon field, has been first with countless features for improved office efficiency and economy. Webster Durametric is a recognized leader in the field as is the entire Webster line of carbons and ribbons.

Give Webster a try in your office — and YOU'LL be excited, too! Telephone or visit your stationer's or write to us for free sample.

CARBON PAPERS AND INKED RIBBONS BY

F. S. WEBSTER COMPANY

7 Amherst Street, Cambridge 42, Mass.

For More Information Circle No. 204 on Inquiry Card-Page 17

# New MARATHON BLACK

HECTO MASTERS

are



The unpleasant stain and smear that once was the trademark of hectograph spirit duplicating is rapidly becoming a thing of the past—thanks to Columbia research and development. New, Black Marathon Ready-Master Units are clean—clean because Columbia's exclusive ink does not "blossom" on contact with the skin-clean because protective Supercoating covers carbon surface and all edges. Yes, the results you can obtain from Marathon Black Ready-Master Units will prove how much Columbia engineering has advanced the quality of hectograph duplicating.

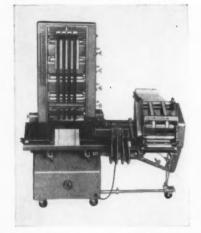
Use the coupon below attached to your business letterhead to obtain your copy of the Free booklet, "Quality Duplicating With Hectograph".

Columbia RIBBONS · CARBONS

DUPLICATING SUPPLIES

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Send book!	Co., INC. Road, Glen Cov	
Name		
Company		
Address		
City	Zone	State

For More Information Circle No. 205 on Inquiry Card—Page 17



J. C. Mendes Corp., Canton, Mass., has introduced its JCM Vertical Bookleteer for the production of 16 or 32-page booklets from flat sheets in a single operation. The 4-in-1 unit automatically collates, jogs, stitches and folds booklets at speeds up to 3,000 finished booklets per hour. The machine handles 6" x 7½" up to 11" x 14" sheets of any weight paper from 12 lb. to 100 lb.

Circle No. 78 on Inquiry Card-Page 17



Low cost microfilming for a wide variety of business documents, ranging from file cards to large ledger forms, is possible with the new Recordak Reliant Microfilmer, announced by Recordak Corp., subsidiary of Eastman Kodak Company, New York. Lenses provide 40 to 1, 32 to 1, and 24 to 1 reductions. Three methods of microfilming may be used. With the Duplex Method, the fronts and backs of documents are photographed simultaneously side by side on the film. With the Duo Method, the fronts of documents are photographed down one half the film width, then up the other half. With the Standard Method, the fronts of documents are photographed across the full film width. Up to 29,000 smaller items, such as reference cards and bank checks, can be recorded on a 100-foot roll of 16mm films.

Circle No. 79 on Inquiry Card-Page 17

QUICK—CONVENIENT
Use the Inquiry Card on
Page 17 for additional
information on any product



MR. GEORGE E. GARDNER, President, North-

"Naturally, in a business which depends on precision performance such as ours does, the cost of materials must be a very secondary consideration... secondary to quality and reliability. It is interesting to note, however, that the utilization of superior products seems to add little—if at all—to total costs."

FOR EXAMPLE: Your business stationery. Surveys by the National Stationers' and Office Equipment Association show that the paper constituting the average letterhead, envelope and file copy costs less than a postage stamp. This microscopic cost rises less than 1% of total correspondence costs when you entrust your letters—your personal representatives—to the highest-quality, most impressive, rag-content letter paper obtainable: ADVANCE BOND.

ANOTHER EXAMPLE: Your business records. Record paper averages but 1% of total accounting costs. This minute cost increases less than 1% when you select the most durable, permanent record paper made: L. L. Brown's LINEN LEDGER.

Thus at practically no extra cost, you can be sure of prestige-enhancing stationery and dependable records regardless of time and hard use. These plus values have characterized L. L. Brown papers for 106 years.

Your regular supplier of stationery and records is well versed in the various L. L. Brown papers. He will gladly recommend those best suited to your particular requirements. L. L. Brown Paper Company, Adams, Mass.

# L. L. BROWN



DADFRS



"SO MUCH extra value FOR SO LITTLE extra cost" Since 1849

For More Information Circle No. 206 on Inquiry Card—Page 17 PURCHASING



MONGOL is "part of the product" in every American industry... the preferred pencil of America-on-the-job! Mongol okays the shipment F.O.B. Detroit. Mongol registers the elevation of a California highway. Mongol fills out the insurance forms in Miami.

Mongol was the first well-known brand of yellow pencil. It's America's standard of quality—and today's Mongol is the smoothest-writing, blackest-writing, longest-wearing pencil you can buy. It's one of more than 3,000 products made by Eberhard Faber, the name people rely on for fine writing materials. Look for that name—Eberhard Faber—on EVERY pencil you buy!

Trademarks Reg. U. S. Pat. Off.

# EBERHARD FABER SINCE 1849

puts its quality in writing

NEW YORK . TORONTO

For More Information Circle No. 207 on Inquiry Card-Page 17

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### PRINT hundreds of FAST, CLEAN PERFECT COPIES

#### . IN MINUTES . IN 1 to 5 COLORS

Now, you can make 120 or more copies per minute of anything up to  $9\times14$  inches in size — typed, written, drawn, traced or ruled — in 1 to 5 colors. All in one easy, inexpensive operation. The Hever Conquerors. Manual and Electrically Operated, are the duplicators with ALL the features . . . priced much lower than comparable machines. Model 70-Hand Operated-\$195 (plus tax)

Model 76-Automatic Electric-\$325 (plus tax) Write today for FREE descriptive literature and name of your negrest dealer-to:

THE HEYER CORPORATION 1830 S. Kostner Ave., Chicago 23, III.

For More Information Circle No. 208 on Inquiry Card—Page 17

Following the annual meeting of the Gilbert Paper Co., Menasha, Wis., the following changes in officers were an-William Gilbert is now vice nounced. president and director of purchasing. N. T. Gilbert becomes vice president and director of sales. T. C. Catlin was elected vice president and mill manager. J. D. Schmerein was made secretary and assistant sales manager. A. C. Haselow continues as treasurer.



An eighth-station collator is being marketed by Cummington Corp., Boston. Called the Model 85, it is an autotomatic collator that will handle the lightest manifold paper (also one-time carbon) intermixed with heavy ledger without complicated feed mechanisms. Any size sheet from 5" x 7" to 11" x can be handled. A push of the starting button sets off the gathering of up to eight sheets at a rate of 10,000 sheets per hour and the automatic delivery of the gathered papers in alternate, offset piles. The machine is finished in gray-green and is a wholly self-contained unit. It requires less than 34 hp and can be connected to any 115-volt, 60-cycle circuit. Total floor space occupied is 31" x 63". Circle No. 79 on Inquiry Card-Page 17



The new Sentry line of personal safes now features a number of innovations. Made by John D. Brush & Co., Inc,. Rochester, N. Y., the safes are housed in finished wood cabinets of African mahogany, bleached mahogany and walnut. The Sentry "Major", which is not enclosed, is a low-cost safe with a full 3285 cu. in. capacity. It weighs 275 lbs. and measures, outside, 241/2" x 171/2" x 223/4". It is finished in either brown or grey metalescent baked enamel finishes.

Circle No. 80 on Inquiry Card-Page 17

don't you wish...

. . . that every piece of equipment you buy for office, plant or home could match the efficiency . . . precision . . . durability . . . and special-purpose variety of types . . . that have been building BOSTON Sharpeners' reputation for almost 50 years?

for instance



Pencil Sha



. . . has the basic features of every BOSTON:—

A full 1 year guarantee
 Specially designed cutters with 30 cutting edges

 instead of the usual 24—correctly angled for speed and long life

BOSTON STOP-cutting stops when point is

perfected

• All-metal streamlined design

• Die-cast stand Plus—the KS feature Snap pencil guide for 8 sizes

FREE! Non-advertising SCHOOL REPORT BOOK on pencil-sharpener care, selection and use in schools.

C. HOWARD HUNT PEN CO. Camden 1, N.J.



Also manufacturers of SPEEDBALL pens and products.

For More Information Circle No. 209 on Inquiry Card-Page 17 180

Quick Reference Legal Help For The Purchasing Agent

### "PURCHASE LAW MANUAL"

390 pages, 56 chapters, cross-indexed 53/8 x 8, \$6.00

By Albert Woodruff Gray Foreword by Stuart F. Heinritz . . . Editor, Purchasing

This new manual gives you practical help in determining your legal rights and obligations in every purchasing situation.

Now you can have at your fingertips-ready for instant reference-reliable guidance that will help keep you posted on your legal status when dealing with suppliers.

PURCHASE LAW MANUAL is divided into 56 short chapters -completely cross indexed. Key points you must keep in mind are listed at the beginning of each chapterall designed specifically for quick and easy reference.

Here is a desk book no purchasing agent or buyer should be without!

### 10-day Free Examination

Conover-Mast Book Div., 205 E. 42nd St., New York 17,

For More Information Circle No. 392 on Inquiry Card-Page 17 PURCHASING Marchant Calculators, Inc., Oakland, Calif., has announced new appointments. Ryland L. Hall is now agency manager of the Wilmington, Del., district office, while Jack Fleig takes on the same duties in Sacramento, Calif. Marchant also announced that the new agency manager in the Youngstown, Ohio, district office is John A. Maloney.

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Techniflax Corp., Holyoke, Mass., announces a new accessory for the Streamliner diazotype machine. It is a simple, low-cost gravity feed ammonia system. Called "Flow-Feed", it eliminates vapor lock and maintains full-strength 26° Baume ammonia. Ammonia is stored in a one-gallon, unbreakable polyethylene bottle, securely mounted on an aluminum casting.

Circle No. 81 on Inquiry Card-Page 17

The promotion of Charles W. Schreiber, vice president in charge of sales for Yawman and Erbe Mfg. Co., Rochester, N. Y., to the post of executive vice president has been announced. Mr. Schreiber joined Y&E more than 25 years ago as manager of the National Accounts Sales Division head-quartered in New York. At the same time, it was announced that Merland G. Hamm, assistant secretary, is now assistant secretary and assistant treasurer.



The Lithocalculator Co., Arcadia, Calif., is introducing a new series of improved slide rules. The first issued is the Eckel "Layman's Calculator" for machinists, bookkeepers, salesmen, store managers, etc.

Circle No. 74 on Inquiry Card-Page 17

Lansdale Products Corp. has removed its offices to a new building at 127 E. Main St., Lansdale, Pa.



A new paper cutter has been announced by Hectographia Corp., New York. Called the "Safe-T Paper Cutter", it features a "hidden blade" which will cut anything—tissue, paper, cloth material, cardboard, etc. The cutting edge is a completely concealed, easily changed, standard Shick Injector razor blade that cannot touch anything except the material being cut. The cutter operates with a one-hand-press-and-slide motion, and will cut up to 20 sheets of typewriter bond paper without bevel, wave or creep. It is made in sizes 12", 15", 18" and 24".

Circle No. 82 on Inquiry Card-Page 17

International Business Machines Corp., New York, has announced three new promotions. Dr. Cuthbert C. Hurd is now director of EDPM (electronic data processing machines). He had been director of IBM's applied science division. Also, Thomas E. Clemmons is now sales manager of the EDPM division. In the accounting machine division, IBM has named Robert T. Samuel as assistant sales manager. He was formerly manager of the company's transportation department in New York.

R. P. Rooney is now sales manager of the Colitho Division, Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y. Mr. Rooney, recently eastern district training manager, joined the Colitho Division in 1949 as a sales representative.

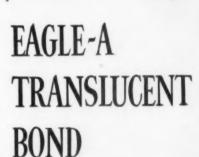
Marchant Calculators, Inc., Oakland, Calif., has named Robert S. Henninger as agency manager of the Santa Rosa, Calif., district office.

R. Stuyvesant Pierrepont has been elected to the board of directors of the Waterman Pen Co., Inc., New York.

PLEASE USE INQUIRY CARD PAGE 17

# NEW Master Paper for Direct Copying Machines

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Ideal master paper for Bruning, Ozulid, Pease and other direct-print machines. With Eagle-A Translucent Bond as your original sheet, you can get better copying results every time. The improved translucency of this new master paper gives you cleaner, unclouded copies of records and forms.

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	NAME
	TITLE

For More Information Circle No. 211 on Inquiry Card—Page 17

MAY, 1955

# AMONG THE ASSOCIATIONS



### New York Ass'n Sponsors Successful Seminar



Some 60 purchasing agents from leading firms whose annual purchases total well in excess of two billion dollars met at the Waldorf-Astoria in New York March 22-24 for a three-day seminar sponsored by the Purchasing Agents Association of New York.

A group of 60 members of the Purchasing Agents Association of New York accepted a challenge to find a more effective place for themselves on the top management team of their respective companies and attended a unique three-day seminar on management development for purchasing executives at the Waldorf-Astoria.

The meetings were designed to show purchasing men how recent advances in the fields of industrial and clinical psychology, business management, information theory, general semantics, and perception psychology can prove to be of great practical value to their management effectiveness.

"No executive is smarter than the information he gets. Even a brilliant executive makes stupid decisions based on faulty information. Modern advances show that more com-

(Please turn to page 184)

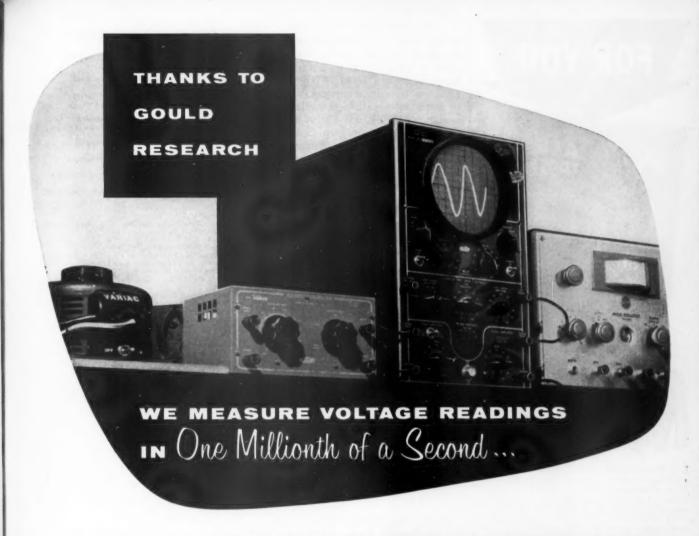
### Four Associations Hold Joint President's Night



More than 170 members and guests of the Akron, Canton, New Castle and Youngstown District Purchasing Agents Associations were honored to have as guest speaker N. A. P. A. President Howard Ahl. The meeting was held in Akron. Seated while Mr. Ahl speaks are J. L. Hyatt, Henry L. Ruf, vice president of N. A. P. A. District Six, and



F. O. Goodnight, president of the Akron Association. Standing round the microphone are C. E. Carlson, vice president of the Cleveland Association, Mr. Ahl, W. L. Brown, national director of the Canton Association, and J. L. Hyatt, national director of the Akron Association.



### TO GIVE YOU GREATER BATTERY DEPENDABILITY!

Practically instantaneous voltage readings are made possible by the Oscillograph shown above. This important laboratory instrument has enabled Gould research technicians to 1) carry on the study of battery performance under instantaneous loads of fast circuit-breaker operation; 2) study the response of a battery to high charge rates; 3) attain more closely a perfect balance between grid design and active material.

This kind of basic research, in one of the finest battery research laboratories in the world, has given Gould Batteries service life and dependability thought impossible only a few years ago. That's why Gould Batteries are today's best battery buy. Specify GOULD!

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For More Information Circle No. 212 on Inquiry Card-Page 17

MAY, 1955

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It's FREE for the asking-this brand new catalog containing photographs and descrip-tions of dozens of different MALL air tools designed to help you boost production and cut costs. MALL air tools provide POWER UNLIMITED shift after shift...and at the same time eliminate worker fatigue because of their amazing lightness and compactness. MAIL THE HANDY COUPON BELOW FOR YOUR FREE COPY.

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America's featherweight production champs are break-ing production records in plants from coast to coast.

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For More Information Circle No. 213 on Inquiry Card-Page 17

(Continued from page 182) monly than is realized, information is lost or distorted in the very process by which it is gathered, analyzed and evaluated." When you give an executive proper practice in such information-gathering and problem solving, he becomes confident enough to face up to a problem, marshal his facts, and make a reasonably quick and sound decision based on those facts. The man substitutes positive and conwhich seldom structive action causes trouble for indecision which almost always sets the kettle boil-

Another important phase of the three-day Seminar consisted of showing the purchasing executive that his future is wrapped up in the kind of job he does in building his subordinates.

Material presented at the Conference was drawn from experiments and demonstrations in perception psychology developed at Princeton and Dartmouth Universities as well as from on-the-job approaches to management development and management analysis used by Management Development Associates in its regular consulting services to clients

### Radio Free Europe Discussed at Denver Ass'n Meeting

1 1 1

Something different in the way of programs was presented at the March meeting of the Purchasing Agents Association of Denver. Speaker was Mr. Robert McCollum of the Denver City Council. His subject was "Home Thoughts from Abroad." Mr. McCollum is Denver chairman of the Crusade for Freedom campaign. He visited Europe recently to inspect the operation of Radio Free Europe. He reported at the Denver Association meeting that the facilities of Radio Free Europe are excellent with 29 transmitters operating round the clock and some 1700 employees.

#### Lancaster Club Has Joint Meet

The Purchasing Agents Club of the Manufacturers Association of Lancaster, Pa. held its annual joint meeting with the Sales Executives Club. Dinner was served at Lancaster's Hotel Brunswick. Guest speaker was Harold Schafer, president, Gold Seal Company, manufacturer of Glass Wax.

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United States Steel Supply Div., Sr. Louis NEW JERSEY Edgcomb Steel and Aluminum Corp., Hillside Peter A. Frasse & Co., Lyndhurst Mapes & Sprowl Steel Co., \*Union

NEW YORK
J. G. Braun Co., (Architectural only) \*New York
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Syracuse
Mapes & Sprowl Steel Co., Union, N. J.
Ontario Metal Supply, Inc., (Wire, Rod, Bar) Rochester NORTH CAROLINA

ern States Iron Roofing Co., Raleigh OHIO Bridgeport Brass Co., (Wire, Rod, Bar) Cleveland Kasle Steel Corporation, Cleveland Mutual Manufacturing & Supply Co., \*Cincinnati Varys Brothers, Inc., \*Columbus

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UTAH Salt Lake Hardware Co., \*Salt Lake City VIRGINIA
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# REYNOLDS



# ALUMINUM

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For More Information Circle No. 214 on Inquiry Card-Page 17

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### St. Louis Ass'n Meets at Washington U.

April 26 was the date this year for the Educational Forum of the Purchasing Agents Association of St. Louis at Washington University. In the afternoon, the film "It's Your Decision" was shown. This well received film deals with the problems of three ex G. I.'s who go into business for themselves. It served as a good introduction to a group discussion of some of the economic facts of life. In the evening, the group was privileged to get some economic information from an expert. He was Dr. Hans Luedicke, editor of the Journal of Commerce.

The March meeting of the St. Louis group was mostly devoted to a closed business meeting. However, there was a very educational premeeting session. The film, "Energy Is Our Business," was presented. It dealt with all phases of electricity. The "Know Your Members' Commodities" speaker was J. R. Sayres of Monsanto Chemical.

### New Officers of Sabine-Neches Association



The 1955 management team of the Sabine-Neches Association of Purchasing Agents includes, left to right: O. E. McClusky, Sun Oil Company, secretary treasurer; Guy Sherrill, Texas Co., local director; P. H. Doughty, American Locomotive Co., local director; James F. Swanzy, E. I. DuPont deNemours & Co., first vice president; E. L. McEwan, Norvell-Wilder Supply Co., second vice president; J. W. Wiggins Jr., Dresser Industries, president; George Fecel Jr., Sun Oil Co., national director; and L. A. McNeil, John Dollinger Jr. Inc., alternate national director.



# Houston Ass'n Names "Outstanding Member"

E. F. Foster, left, gives P. E. Walker the "Outstanding Member of the Year Award."

Officers of the Houston Association for 1955 include, front row, left to right: Paul Berry, James Bute Co., first vice president; C. O. Brotherton, Gulf Oil Corp., president; E. F. Foster, Wyatt Metal & Boiler Works, national director; and F. L. Scott, Baker Oil Tools, Inc., second vice president. In the back row are: Gene Walker, United Gas Corp., alternate national director; C. Jim Stewart, Stewart & Stevenson Services, treasurer; W. J. McSherry, Napko Paint & Varnish, secretary; T. J. Price, Engineers & Fabricators, local director; and W. C. Norris, Peden Iron & Steel Co., local director.

Highlight of the Annual Inaugural Ball of the Purchasing Agents Association of Houston was the announcement of the winner of the "Outstanding Member of the Year Award." This award is given annually to the member voted most deserving by the membership and is based on contribution toward bettering the purchasing profession and the Association. Some 850 members and guests were on hand at the gala Shamrock Hotel event and they saw P. E. Walker of United Gas Corporation honored as an outstanding member by his fellows in the purchasing profession. Mr. Walker was national director of the Houston Association during 1954 but still found time to lend encouragement and assist on many other projects. The award was made by E. F. Foster of Wyatt Metal & Boiler Works. Mr. Foster was president of the Association during 1954.

Introduced at ball were the Association's 1955 officers. They include: C. O. Brotherton, president; Paul Berry, first vice president; F. L. Scott, second vice president; Jim Stewart, treasurer; W. J. McSherry, secretary; E. F. Foster, national director; and Gene Walker, alternate

national director.

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See General for any grade, any strength you need!

General Chemical Sodium Silicate, with its wide range of grades and viscosities, offers you unmatched production advantages . . . because you get the product best suited to the particular needs of your process.

...Standard opalescent solutions range from 38° Baume to 60°. White clear solutions are available in concentrations from 38° to 52° Baume. These solutions are easily miscible with water in all proportions and may be used in highly concentrated form or as a very dilute solution. General Chemical also has Sodium Silicate available as a "glass" to be used as such or dissolved as needed.

For your general needs, General Chemical supplies mixed solutions, ready to use; no elaborate equipment is necessary. For special needs, General will prepare Sodium Silicate according to your specifications.

Sodium Silicate solutions are available in 55-gallon drums, tank cars and tank trucks. Glass is shipped in bulk. Consult our technical service staff for special grade of Sodium Silicate to meet your particular needs. Call or write today!

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For More Information Circle No. 217 on Inquiry Card-Page 17



Dithering, flickering fluorescent lamps are costly — even more than human fatigue is involved. Lamp ballasts and starters also are being overworked.

G-E Watch Dog starters stop this waste. When a lamp reaches the end of its useful life and starts to flicker, the Watch Dog starter automatically cuts it out of operation until it is replaced with a new lamp.

Moreover, one Watch Dog starter outlasts up to 10 ordinary starters. And for pennies more, lamp life will actually be increased as much as 25% to 50% with the NEW FS-400 Watch Dog Starter. Wiring Device Department, General Electric Company, Providence 7, R. I. \*Registered Trade-mark of General Electric Co.

### GENERAL ( ELECTRIC

For More Information Circle No. 218 on Inquiry Card—Page 17

### National President Ahl Speaker at Chicago Ass'n Meeting

The March meeting of the Purchasing Agents Association of Chicago featured a double header program. First, there was N. A. P. A. President Howard Ahl. In addition, there was N. A. P. A. District 3 Vice President F. G. Syburg. Mr. Ahl heads the purchasing of Philip Morris & Co in New York while Mr. Syburg is director of purchases of Chain Belt Co. of Milwaukee. For this meeting, members of the Women's Division and their assistants were also on hand.

Prior to the dinner meeting, there was a Metal Manufacturers Group meeting. It featured a forum on "How to Buy Metals from Warehouses." Serving as moderator was Fred R. Burns, assistant sales manager, Central Steel & Wire Co. Aluminum, copper & brass products, flat rolled steel products, and hot rolled and cold finished bars and plates were discussed by men from Mr. Burns's organization who specialize in these commodities.

### North Calif. Federal Buyers

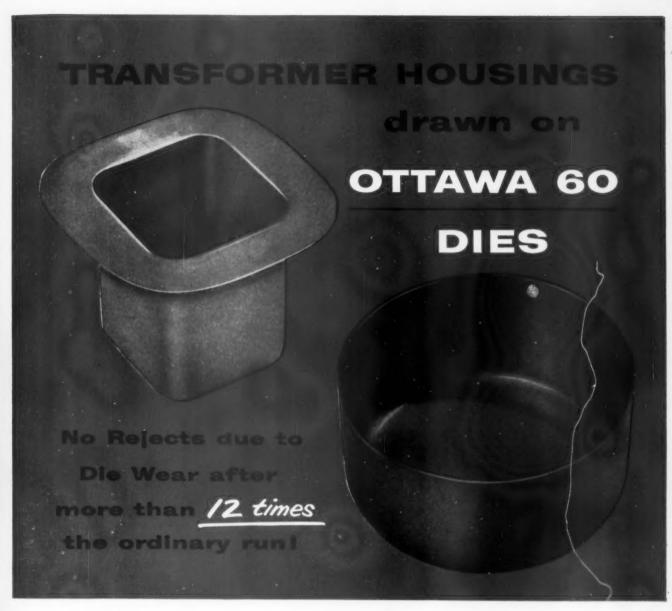
The March meeting of the Federal Procurement Officers Association of Northern California was held at the customary meeting place, the Leopard Cafe in San Francisco. Following luncheon and routine announcements, members were privileged to hear John B. Vernou, head of the Material Section in the Maintenance & Repair Office of the Military Sea Transportation Service, Pacific Area. Mr. Vernou's topic was "Military Sea Transportation Service." This talk was part of the Association's "Know Your Federal Agency" series. In addition, members heard Harry W. Guppy's talk "San Francisco Needs Sound Procurement by Government Agencies." Mr. Guppy is Pacific Coast manager of Planters Nut & Chocolate Co. and also serves as chairman of the Government Purchasing Committee of the San Francisco Chamber of Commerce.

### Correction

In the April issue of Purchasing, two officers of the Purchasing Agents Association of North Jersey were incorrectly identified in a photo caption. Ruben J. Atkins was identified as William J. Gibson. It was stated that Mr. Atkins was not present when the picture was taken; actually Mr. Gibson was not present.



For More Information Circle No. 219 on Inquiry Card—Page 17 PURCHASING





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This Blue Sheet contains certified data on the physical characteristics of Ottawa 60, prepared from carefully checked laboratory and field service tests. All the information you'll need on methods of handling and heat treatment, etc.

ADDRESS DEPT. P-65

OTTAWA 60 is a new die steel, an A-L "original," developed primarily to deep draw and form stainless steel. As intended, it performs without galling or pickup and shows exceptional wear resistance in that service. We have plenty of case histories to show you in proof.

But wherever you use Ottawa 60 draw dies—not just on stainless steel—this high-carbon, high-vanadium alloy comes through for you. Illustrated above are the first and second draws on transformer housings, produced from .037" gauge SAE 1010 strip. The company formerly used dies made of 5% chrome air-harden-

ing die steel—and later a more highly alloyed material—without ever getting more than about 2000 pieces before the dies began to show gall marks and pickup, and parts were rejected due to scoring, breakage and oversize. Dies made from Ottawa 60 forgings cured that! Results after 25,000 pieces showed no pickup and no wear on punch or die.

• You can solve many a problem and save real money with Ottawa 60 draw dies! Write for information or call in our Field Service Staff to help you get started. Allegheny Ludlum Steel Corporation, Oliver Bulding, Pittsburgh 22, Pa.

For complete MODERN Tooling, call Allegheny Ludlum



For More Information Circle No. 222 on Inquiry Card-Page 17

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Air Cooled ENGINES

3 TO 36 HORSEPOWER

In the design, manufacture, and ultimate use-purchase of mechanized field and industrial equipment . . . Wisconsin Heavy-Duty Air-Cooled Engines are specified as Original Equipment Power Components to a greater extent than any other make of engine, within a 3 to 36 hp. range.

This dominant preference must necessarily be based on actual performance records of users . . . because Wisconsin Engines are not sold on a "price" basis. These engines have the inherent Lugging Power that stays with the job, eliminating "stop-and-go" delays, saving man-power and manhours . . . and delivering "Most H. P. Hours" of on-the-job service, with minimum servicing.

If this makes sense to you, let's get together. Write for engineering and descriptive data.









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### WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines MILWAUKEE 46, WISCONSIN

For More Information Circle No. 223 on Inquiry Card-Page 17



6400 PARK AVENUE . Dlamond 1-1740 . CLEVELAND 5, OHIO For More Information Circle No. 224 on Inquiry Card-Page 17

### North Jersey Ass'n Now Has 250 Members

Though it is but six meetings old, the Purchasing Agents Association of North Jersey is now the third largest in the N. A. P. A. 8th District. One reason for the rapid growth is undoubtedly the fact that the Association draws for membership on one of the most highly industrialized areas in the country. Another is the broad variety of programs offered members. Here are some examples.

During the month of March, the Education Committee conducted programs at the Rutgers Science Building dealing with abrasives and plastics. At the first meeting, a film was shown by the Carborundum Co. and two representatives of the company were on hand to answer questions. At the second, Formica Co. showed a film. PAs got a lot of information on plastics. Plant visits weren't overlooked either. There was a tour of Ballantine's Brewery

in Newark. At the regular March meeting,

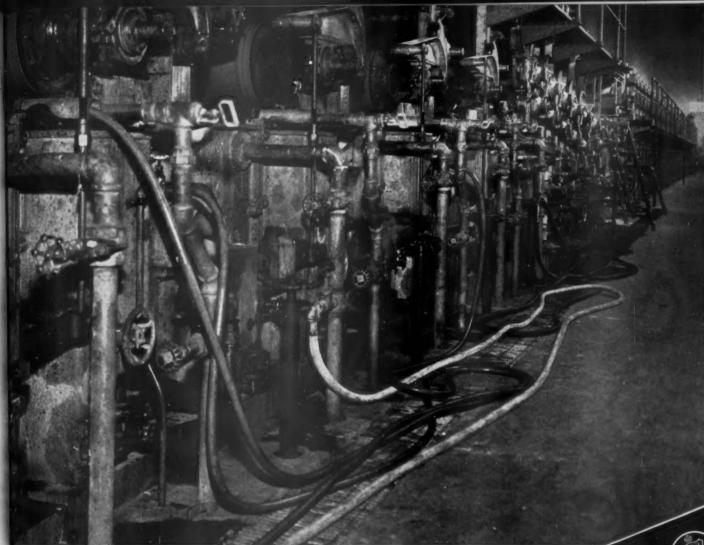
more than 100 PAs attended the pre-dinner forum. This time the topic was "Using the Newark Business Library." The session was conducted by A. P. Lennert, supervisor of industrial relations of Westinghouse Electric Meter Division and former senior library assistant at the Newark Business Library. At this forum, it was pointed out the Newark Library is the second largest of its kind in the United States and that considerable value can be derived from the many books on its shelves.

Featured speaker at the dinner meeting was Howard Bolton Begg, general manager of Squier, Schilling, & Skiff, Inc., one of New Jersey's largest industrial supply houses. Mr. Begg discussed "Purchasing's Place in Management."

> Texas Panhandle Ass'n **Sponsors Contest**

At its March meeting in the Blackstone Hotel in Amarillo, the Purchasing Agents Association of the Texas Panhandle honored two students from West Texas State Teachers College. Miss June Smith won first place and Miss Betty Norman won second place in a writing contest on the subject of "Industrial Purchasing." Guest speaker at the dinner meeting was H. E. Kaiser, vice president of N. A. P. A. Dis-

For More Information Circle No. 225 on Inquiry Card—Page 17→



# Thermoid Hose Versatility Cuts Your Costs

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The versatility of Thermoid multi-purpose hose makes stocks of many different types unnecessary. You cut your hose cost through reduced inventories, simplified buying and less storage space. Losses from end remnants are greatly reduced.

**VERSAFLEX**—Excellent for handling air, water or oil under high pressure. Use also for butane, propane and as fire fighting booster hose. Red cover.

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In addition, Thermoid makes other types of hose for specific applications, such as paint spray, sand blast, dust collecting, etc. Call your Thermoid Distributor. He can help you select the hose best suited for your requirements. Or write direct for our latest catalogs.

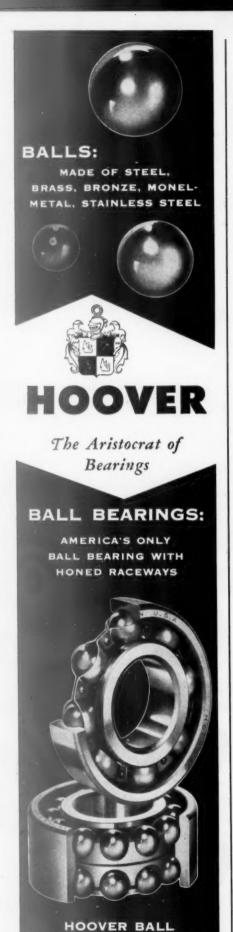
Your Thermoid Distributor also carries a complete line of Thermoid Conveyor Belting and Multi-V Belts to meet all your requirements.



Conveyor & Elevator Belting • Transmission Belting F.H.P. & Multiple V-Belts • Wrapped & Molded Hose



Rubber Sheet Packings • Molded Products Industrial Brake Linings and Friction Materials



For More Information Circle No. 226 on Inquiry Card—Page 17

AND BEARING COMPANY

ANN ARBOR, MICHIGAN

### L. A. Ass'n to Sponsor Pacific Conference

The Los Angeles Purchasing Agents Association will hold the 9th Pacific Inter-Mountain Conference at the Los Angeles Statler Hotel on September 22-23-24, it was announced by S. H. Bellue, chief of material, Hughes Aircraft Company. An Industrial Products Exposition, which will be held in conjunction with the conference, brings back an exhibit which was a regular feature of the Purchasing Agents Association for many years.

Starting on April 11, 1929, the

Starting on April 11, 1929, the exhibit was held each year in the form of miniature displays being shown on large tables. The exposition became a casualty of World War II and is now being revived with a broad basic philosophy to fit the Industrial Giant which has come of age in Los Angeles.

The need for this knowledge is greater now than it has ever been. Not only do we have innumerable new plants, but multitudes of new products as well as improved versions of old ones. Many of these are made here on the coast and many more are available through representatives, dealers and distributors in the West.

The exhibit this year, in contrast to the miniatures placed on tables, is being planned to give exhibitors full space and facilities to show their products.

It will provide a valuable educational show for buyers, engineers, maintenance men, students and many others active in industry and commerce. It will be an unmatched opportunity for industry to exhibit its latest and best to the people who do the using and buying.

The conference and exhibit will bring together not only the members of the Los Angeles Association but members of the Association of Northern California, Oregon, Washington, Utah, Hawaii, British Columbia, and the newest addition, Purchasing Agents Association of Arizona.

### Youngstown Ass'n Activities

The March meeting of the Youngstown District was another fine one. On hand was Mr. Numa Vidal, Manager of the Pennsylvania Power Co., Sharon, Pa. Mr. Vidal moderated the Ohio Edison Co. film, "The Center of Industrial America." The film depicted the attractiveness of western Pennsylvania and Ohio as industrial sites.



For More Information Circle No. 227 on Inquiry Card—Page 17 For More Information Circle No. 228 on Inquiry Card—Page 17→

Wherever you're located

## YOU CAN GET WALDES TRUARC RINGS IN A MATTER OF HOURS

... and whatever you make, there's a Waldes Truarc Ring designed to save you material, machining and labor costs:

	basic t	ypes		fo	r taking u	p end-pl	ау
BAS	ic	INVE	RTED	80	WED	BEV	LED
*5000 (internal)	#5100 (external)	#5008 (internal)	#5108 (external)	#5001 (internal)	#5101 (external)	#5002 (internal)	# 5102 (external)
Tapered design prings to maintain larity and press tom of groove.	constant circu-	Inverted constru uniform protru while maintaining larity when inst	ding shoulders g constant circu-	Bowed constru silient take-up	action permits re- of end-play.	Beveled constr rigid take-up of	ruction permits end-play.
for ra	dial asse	mbly		self	-locking t	ypes	
E-RING	CRESCENT	INTERLOCKING	CIRCULAR SE	LF-LOCKING	TRIANGULAR SELF-LOCKING	TRIANGULAR NUT	GRIP-RING
#5133 #5131 (bowed)	#5103 (external)	#5107 (external)	#5005 (internal)	#5105 (external)	#5305 (external)	#5300 (external)	#5555 (external)
Radially applied. Provides large shoulder on small shaft diameter. Bowed version pro- vides take-up of end-play.	Applied radially over shaft. Secure against impact and vibration.	Two-piece ring applied radially. Secure against extremely high r.p.m.'s and heavy thrusts.	Recommended for blies exposed to r	Requires no groove. permanent assem- elatively moderate s or vibrational	Low cost retainer. Makes possible tight assemblies free of end-play on relatively soft shafts.	Flattens under torque. Secures equal load distri- bution. Replaces lock washer on screw.	Applied axially on shaft. Requires no groove. Exerts considerable frictional hold against axial displacement.

# WALDES RETAINING

RINGS

Waldes Kohinoor, Inc., 47-16 Austel Place, L.I.C. 1, N. Y.

VALUES TRUME RETAINING RINGS AND PLIERS ARE PROTECTED BY ONE OB MORE OF THE POLLOWING U.S. PATENTS: 1.381.847; 1.381.843; 2.418.82; 2.420.921; 2.420.341; 2.430.786; 1.441.846; 2.448.188; 2.489.380; 2.489.380; 2.097.806; 1.447.802; 2.481.394; 2.509.081 AND OTHER PATENTS PENDING

### ONE OF THESE AUTHORIZED DISTRIBUTORS IS CONVENIENT TO YOU:

ALA. Birmingham, Moffatt Brgs.
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ARIZ. Phoemia, E. D. Maltby Co.
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CAL. Los Angeles,
Edw. D. Maltby Co., Inc.
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ILL. Chicago, Berry Brg. Co.
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Bayton, Ohio Ball Bearing Co.
Lima, Ohio Ball Bearing Co.
Alamitten, Ohio Ball Bearing Co.
Yolede, Ohio Ball Bearing Co.
Yolede, Ohio Ball Bearing Co.
ORE. Eugene & Portland,
The General Tool Co.
PA. Erie, Pennsylvania Brgs.
Philadelphia, Moffatt Brgs. Co.
Philadelphia, Moffatt Brgs. Co.
Pittsburgh, Pennsylvania Brgs.
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Factory engineering representatives available in each area

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# it's the seasoning that makes the difference

• Making both fasteners and friends for 100 years has given us the experience to supply your needs with the products...plus the service...that will

make it a pleasure for you to do business with Buffalo Bolt. May we serve you?

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CENTRAL OFFICE North Tonawanda JAckson 2400 (Buffalo)



### **BUFFALO BOLT COMPANY**

Division of Buffalo-Eclipse Corporation NORTH TONAWANDA, N. Y.

Making both FASTENERS & FRIENDS for 100 years

For More Information Circle No. 231 on Inquiry Card-Page 17

### Admiral Hayes Addresses Rochester Association

Speaking at the March meeting of the Rochester Purchasing Agents Association, Rear Admiral John D. Hayes, USN (ret), stated that it was economics and logistics, not strategy and tactics that gave us victory in World War II.

A veteran of the South Pacific during this war, he retired last year to become president of the American Military Institute, a non-profit organization set up to foster the study of military history and civilian-military relations.

"Military procurement," he said, "is the vehicle by which the economy is applied to warfare. That is why I have called it the Bloodstream of War Potential."



Rear Admiral John D. Hayes

Admiral Hayes went on to say that generations before ours had the problems of independence, of opening a continent, of political union, of economic distribution and full employment. Ours has been that of applying economic strength for national security. "The problem now," he observed, "is that of leadership and security of the Free World."

He pointed out that the primary difference in the Russian economy and that of the United States is a good transportation system. "In my opinion," he declared, "as long as conditions exist as they are now there is no need to fear Russia or China too much in the military sense." "But," he said, "these conditions will only last until these comtries have their own transportation revolution." Such a development, the Admiral felt, must come from the airplane; a bulk cargo type of airplane superior to the best of the present type.

"The possibility of the Eurasian land mass being developed industrially through the medium of the

(Please turn to page 202)

C

for Madison High School

### 24 tons

Owner: Davidson County Board of Education Architects: Southgate & Preston, Nashville, Tenn. General Contractor: W. F. Holt & Sons, Inc., Nashville, Tenn. Pjping Contractor: John Bouchard & Sons Co., Nashville, Tenn. Spang Distributor: John Bouchard & Sons Co., Nashville, Tenn.

### CW STEEL PIPE

The rapidly expanding population of school children in Madison, Tennessee, a suburb of Nashville, created the need for a new high school, and the result is this modern 36-room building, now in full operation. Facilities include well-planned classrooms, library, kitchen, dining room, cafeteria, gymnasium, locker rooms and stage.

For plumbing, heating and gas lines throughout Madison High, the specifications called for top-quality SPANG CW Steel Pipe, because SPANG will give long years of dependable service.

SPANG CW is quality-controlled throughout its manufacture; during forming and welding, close control is maintained; before shipment, it is thoroughly tested and inspected. This SPANG quality-control produces pipe which is easy to cut, thread, bend and weld, resulting in savings to you through faster and lower cost topquality installations.

Join the engineers, architects and contractors whose first choice is SPANG CW for all types of installations. Next time you order pipe, specify topquality SPANG CW Steel Pipe. Your local Spang Distributor will give you top-quality service, too!

#### SPANG-CHALFANT DIVISION OF THE NATIONAL SUPPLY COMPANY

General Sales Office: Two Gateway Center, Pittsburgh, Pa. District Sales Offices: Atlanta, Boston, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis



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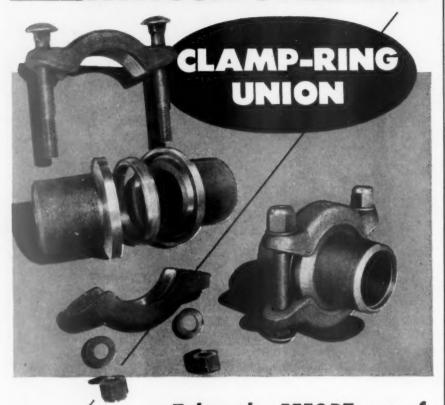
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### **WATSON-STILLMAN**



Takes the EFFORT out of PIPING INSTALLATION



Here's a pipe connection that really simplifies piping fabrication and installation. It's easy to assemble... and just as easy to take apart, yet it provides a strong, tight joint. Ideal for those hard-to-reach locations. The clamp can be rotated so the nuts are in the most convenient position for gripping and turning with a wrench. And only one wrench is needed for tightening because the heads of the carriage bolts are self-locking.

W-S Clamp-Ring Unions are available for buttwelding, socket-welding and screw-end pipe. Try them in your piping system. See for yourself how convenient...and effective...they are.

For more information on Watson-Stillman Clamp-Ring Unions and for available sizes and specifications, send today for Bulletin CRU-1.

**Sold Through Leading Distributors** 



### **WATSON-STILLMAN FITTINGS DIVISION**

H. K. PORTER COMPANY, INC.
Roselle, New Jersey

12

For More Information Circle No. 233 on Inquiry Card-Page 17

(Continued from page 200)

bulk carrying airplane should be a sobering thought for Americans," he said. He went on to question, "Is there a way out of this dilemma? Well there is a great deal of the world outside the Eurasian land mass that needs to be developed." "Perhaps," he reasoned, "the answer doesn't lie in economic theory. The problem may be moral or theological. In God's wisdom our present economic and military superiority may be to give us the time to exert religious, cultural and moral forces necessary for the solution of this problem." "In any case," he observed, "it looks like the problem for the next generations of Americans. As I see it, our job now is to make and keep friends, keep our atomic powder dry and bring up our children to face the tremendous responsibilities that will certainly be theirs."

Closing on a personal note the Admiral stated that it was his belief that the United States has been served more efficiently by its corps of professional officers than has any other country in the world's history—at least since the days of the Roman Centurian. He requested that young Americans be encouraged to take up the trade of military men because of the country's great need. "They will never get rich," he commented, "but they will have everything else."

### Lehigh Valley Executive Nite

There was an excellent turnout of 152 members and guests for the annual "Executive Nite" of the Purchasing Agents Association of the Lehigh Valley. Following a brief business session, the chairman of the evening, Bill Schon of Bethlehem Fabricators Inc., introduced the speaker of the evening. He was Frank B. Rackley, president of the Jessop Steel Co. Mr. Rackley's topic was "Purchasing Comes Into Its Own." He described how when sales are up and profits are down, management must look to one of the few untapped areas for building profit—the purchasing department.

### Joint Meeting in Toledo

March 28 was the date of the annual joint meeting between the Toledo Purchasing Agents Association and the Toledo Sales Executives Club. Highlight of the affair was a play written and acted by members of both groups.



Owned by Jessen Manufacturing Company, today's most advanced automatic screw machine uses Cities Service Cutting and Hydraulic Oil

Weighing 39 tons and powered by a 60 H.P. motor, this 6-inch, 6-spindle Acme Gridley Automatic Screw Machine is one of the only six now in existence . . . and the only one owned by a job shop. Featuring a combination pneumatic-hydraulic operation, it can turn out a single load of stock weighing 3 tons!

The owner is Jessen Manufacturing Company of Elkhart, Indiana—since 1923 famous for keeping on top of new developments. It's not strange, therefore, that for this advanced new machine they chose a top quality coolant—a Cities Service cutting fluid.

Says President J. H. Jessen: "We're happy to say that the Cities Service cutting oil we use today is one of the finest all-around cutting oils we have ever used. In years past, we felt that if a cutting oil was good, it had to be black, heavy, and odorous. Cities Service has changed our minds with a cutting oil that has outstanding cooling abilities, good chip drain-off, is anti-weld . . . and yet possesses light, clear color and has no noticeable odor. In addition, Cities Service Pacemaker Oil used in hydraulic systems, and Amplex Lubricating Oil are doing an outstanding job throughout our shop. We proudly recommend <u>all</u> these Cities Service Oils."

For more information on the complete line of Cities Service cutting fluids, call in a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



Light, Clear Coolant in Acme-Gridley Automatic is Cities Service cutting oil. "Outstanding cooling, anti-weld, and chip drain-off ability," says Jessen. Firm also praises Pacemaker Oils, used in their hydraulic operations.



Jessen Mfg. Company. Inc. Mr. Jacob Jessen, Pres., in business since 1923, has earned reputation of keeping on top of new developments. In 1935, he was one of the first to install 6-spindle, anti-friction bearing screw machine.

# CITIES (2) SERVICE

QUALITY PETROLEUM PRODUCTS
For More Information Circle No. 236 on Inquiry Card—Page 17

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### Central Michigan Ass'n Sponsors Conference

Purchasing Agents Association of Central Michigan was host to the other associations in District Four on April 1 and 2nd. Arrangements for the Fourth District N. A. P. A. Conference, which was held on the Michigan State College campus in E. Lansing, were ably handled by Harold Minnis, general conference chairman, and Leonard Butter, program chairman. Among the notables on hand were Howard Ahl George Renard, Chet Ogden, and Andy Andrews. The program included some novel features. Education, public relations and standardization work shops were held for one of the morning sessions. In the afternoon, there was an interesting discussion between members of the N. A. P. A. Educational Committee and faculty members of various universities in District Four that teach purchasing.

Speaker at the big banquet on the evening of Friday, April 1 was George Renard, executive secretary-treasurer of N. A. P. A. Mr. Renard's penetrating analysis of current economic conditions was in itself worth the trip to East Lan-

sing.

On Saturday, April 2 came some more departures from traditional programs. There was a talk on how to train your secretary and vice versa. Another highlight was a forum on cutting departmental costs with ten hand-picked experts starting off discussion on such topics as: How to eliminate unnecessary small orders; How to handle the necessary ones; The place for warehouse and jobber buys; Policy on purchases for employees; Cutting transportation costs, etc.

### Joint Meeting in Grand Rapids

Purchasing Agents Association of Grand Rapids had a very successful joint meeting with the Grand Rapids Sales Executives Club recently. Featured was a two-part panel discussion on the latest techniques in the selling and purchasing fields. Speaking for the purchasing field with the topic "Modern Trends in Purchasing" were Gordon Annis of Michigan Consolidated Gas Co. and Weldon Sharp of Grand Rapids Brass Co. On the sales side were Henry Greene, executive vice president of R. C. Allen Business Machines Inc. and Frank Ehrett, sales manager of Grand Rapids Varnish Co. Their topic was "Modern Trends in Selling."

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The Ansul dry chemical fire equipment pictured above includes portable hand units, wheeled and stationary units and a jeep installation. Ansul also manufactures automatic

dry chemical piped systems, custom engineered for the hazard. Ansul equipment is listed and approved by Underwriters' and Factory Mutual Laboratories.

# Only Ansul offers a <u>Five Year Equipment Warranty</u>

Your assurance of fast, dependable fire protection

For you, the buyer of fire equipment, Ansul's important 5 year warranty means many extra years of fast, dependable protection. It also means freedom from costly maintenance checks and repairs.

Special design and construction features make this warranty possible. Ansul's weather-tight construction keeps out moisture, resists corrosion. Patented nozzles deliver the right kind of stream for your hazard. A sealed pressure cartridge puts Ansul's "Plus Fifty" dry chemical to work immediately—no delay or lag. Finally, rugged construction makes it possible for Ansul equipment to give peak performance under the toughest operating conditions.

### Call the Ansul Man!

Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Division, Dept. F-83, Marinette, Wisconsin. Write Ansul for your copy of new Fire Equipment Catalog.





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# move safely

over • LOW-COST • LONG-LASTING A.W. SUPER-DIAMOND

Rolled Steel Floor Plate

Where safety and economy are "musts"—no other floor plate can match Super-Diamond's rolled steel ruggedness and easy maintenance for so low a cost.

At every step 40 steel diamonds guard constantly against skids and slips. This non-directional pattern floor plate fabricates easily . . . can be installed overnight . . . gives years of dependable safety under the heaviest industrial loads.

Mail coupon for full details on this low-cost, long-lasting rolled steel floor plate.

# SUPER-DIAMOND

"The diamond in the rough . . . a gem of a flooring."

	ALAN	WOOD	STEEL	COMPAN
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Other products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Sheets
—Strip—(Alloy and Special Grades)

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP... the world's only abrasive rolled steel flooring.



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### New England Ass'n Members Hear President's Message

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Members of the New England Purchasing Agents Association were privileged to have as featured speaker at their March meeting, N. A. P. A. President Howard Ahl. In addition, they got a great deal of benefit out of an afternoon workshop session dealing with the "Traveling Requisition."

New members of the Association include: John T. Andrews, Bird & Son, Inc.; Thomas W. Fay, Boston Pipe & Fitting Co.; Harry S. Forty, C. G. Sargent's Sons Corp.; Lawrence A. Franks, Reed Prentice Corp.; Herbert A. Hamilton Jr., General Electric Co.; Peter G. Leasca, Harrington & Richardson Inc.; John R. Purney, Allis Chalmers Co.; and Clarence H. Savalier, Barkley & Dexter Inc.

### Central Iowa Ass'n Sponsors Tour of John Deere Plant

Members of the Purchasing Agents Association of Central Iowa were guests of the John Deere Co. for a luncheon and tour of the company's factory in Ottumwa. Following this, members held their regular April meeting. Guest speaker was District Three Vice President Fred Syburg. All in all, it was a day and evening filled with interesting and educational experiences.

The group's March meeting was a successful one too. Guest speaker was Lloyd Larsen, general manager of the Lennox Furnace Co. Mr. Larsen's thesis was "Purchasing is Selling." He said that salesmanship is required by the purchasing agent during good times to obtain better purchasing transactions, and in bad times to obtain material in short supply. You can sell a vendor on the idea of giving you a better price or delivery date but you cannot obtain it by force.

The old purchasing agent beat down vendors, embarrassed them, showed absolutely no respect for the representative or his organization. Today the vendor is greeted by a receptionist, waits in a comfortable lobby, and is treated with respect by the purchasing agent. Procurement is the highest form of salesmanship and, if practiced, you will operate at lowest cost.

Big event coming is the Central Iowa Association's Products Show which will be held in the new Veterans Memorial Auditorium. It is scheduled for November 17-18.

# "O" Rings by Automation

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TASING

Automation, the "push-button" by-word of modern manufacturing, has come to the "O" Ring industry!

A new, fully automatic process, known as *Roto-Molding* is producing true compression molded "O" Rings of the highest quality, at production rates never before artained.

#### The Industry's Newest Development

Roto-Molding is entirely revolutionary in its approach to "O" Ring manufacture. It has been called the greatest advance made in this field in years. A completely automatic machine, working under precise, fully-instrumented control, is now turning out Roto-Molded "O" Rings at mass production rates and costs. But that is not the entire story. The quality of these rings is superior in several important respects:

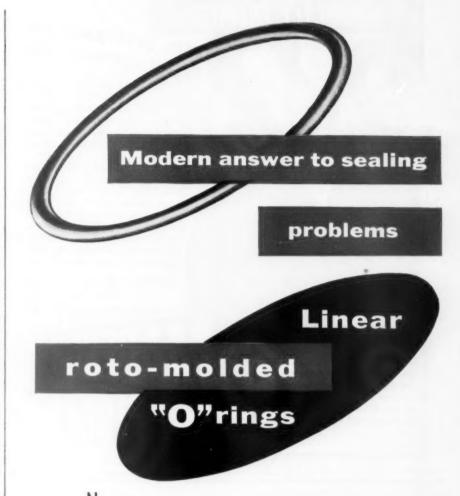
For example, every ring receives exactly the same time, temperature and pressure during the cycle, insuring improved physicals and a uniform ring.

Pre-stretched grain structure—a highly desirable quality that is impossible to achieve with injection or transfer molded rings, is an assured result with the new automatic process. The process minimizes compression set...and dimensional stability is achieved.

#### Uniform Quality Maintained

The Roto-Molding process also produces "O" Rings with flash-free finish and the precise, uniform tolerances needed for modern sealing applications. Handling of the rings is completely automatic, so they are free from contamination through foreign inclusions, and other minute imperfections which may be cause for rejection in non-automatic molding processes. With the Roto-Molding process, uniformity in quality is possible and the A.Q.L. (acceptable quality level) is maintained for all applications.

Because they are automatically mass produced, Roto-Molded "O" Rings are now delivered in large quantities in a fraction of the time previously required for emergency commitments. They are available in a wide variety of sizes and materials, including the newest silicone compounds. Complete information on standard or special applications may be obtained by writing Linear, Inc., State Road and Levick Street, Phila. 35, Pa.



Now LINEAR offers premium quality "O" Rings at mass production prices!

ROTO-MOLDING, LINEAR's new, exclusive, entirely automatic method, eliminates human error—assures precise uniformity in every ring. The maintenance of the A.Q.L. (acceptable quality level) in LINEAR ROTO-MOLDED "O" Rings assures the maximum number of acceptable units at the test stand. Time wasted in disassembly and reassembly due to faulty "O" Rings is reduced to a minimum.

ROTO-MOLDING produces "O" Rings with tough, homogeneous structure, flash-free surface and dimensional stability with improved physicals. They withstand the brutal surge and back pressure of hydraulic systems...resist extremes of heat and cold, and take mechanical abuse never before thought possible.

You can get LINEAR ROTO-MOLDED "O" Rings in a variety of standard and special materials to meet the requirements of use with destructive synthetic fluids, or in the latest silicones with exceptional thermal characteristics.

Write or call for the facts now!







Everyone recognizes this as a sign of law and order . . .

And smart gear users know this san is the sign of good gears made to your specifications.

May We Send You Our Brochure?



"Gears...Good Gears Only"

THE CINCINNATI GEAR CO. . CINCINNATI 27, OHIO

### Conn. Ass'n Hears Standards Expert

In the present sunny climate of economic normalcy an individual company cannot relax and sunbathe, an audience of purchasing agents was told by Arthur S. Johnson, Boston insurance executive.

The more normal the economic climate, the fiercer the competition. he said, and as profit margins shrink, most companies are turning to more efficient buying methods which include company standardization programs.

Mr. Johnson is vice president and manager, Engineering Department, American Mutual Liability Insurance Company, Boston. He spoke in his capacity as chairman of the Standards Council of the American Standards Association, at a dinner meeting of the Purchasing Agents Association of Connecticut.

Businessmen, who used to consider standards as an engineering problem, have since World War II recognized them as an important tool to make operations more efficient and profitable, said Mr. John-

In recent years, he pointed out, many large companies have set up special "purchasing research" or "value analysis" departments which do no actual buying but explore new, scientific ways of reducing the cost of buying.

"They have found," Mr. Johnson said, "that standardization is one of their best bets in their search for new processes and materials that

cost less."

A paper company, he said, made an insurance claim for \$3 million as the result of a machinery breakdown caused by a non-standard gear. Completely new drawings and patterns had to be made before the gear could be replaced and the machine put back into operation.

### Washington Ass'n Honors **Past Presidents**

It was the annual Past Presidents Night of the Purchasing Agents Association of Washington. Heading the committee on arrangements was W. B. Donaldson who was president in 1921. Assisting him were Frank A. Carson, president in 1938-39 and Kenneth A. Knudson, president in 1948-49. Guest speaker was George Miller of the Internal Revenue Bureau. His topic was one on which he would definitely qualify as an expert. "Tax Problems of 1954-5."

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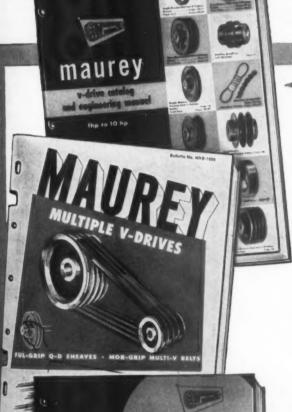
V-BELTS, V-PULLEYS

A... FHP AND MULTIPLE

Useful V-Drive information for the machinery designer and builder, the maintenance man and the purchaser is concentrated in all three of these FREE Maurey Catalogs. They cover the selection, maintenance and application of V-Belts, V-Pulleys and V-Drive parts. The design and construction features which make Maurey Sheaves, Belts and Parts efficient, long-lasting and economical are clearly explained and illustrated. Get these informative, helpful catalogs on your desk without delay. No cost, no obligation. Use the coupon. Specify one catalog, or two, or all three, FREE

Maurey Manufacturing Corp. 2915 S. Wabash Ave., Chicago 16, III.

Use the Coupon NOW. Mail it TODAY, to



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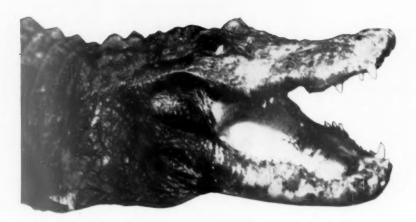
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To leave your men's hands unguarded is as serious a mistake as turning an alligator loose on your plant floor. Just check the record. Hand injuries are the most frequently reported, and result in the greatest production losses, the highest insurance premiums—costly, no matter how you look at it.

More and more safety men have learned that the best ounce of protection they can buy is Jomac® Work Gloves. The tough, twisted-loop construction of Jomacs gives your workers the resiliency and cushioning effect their hands require. Jomacs are sure protection against the hand hazards that threaten your men every day—sharp edges, rough surfaces, bruising blows.

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Jomac Work Gloves keep safety records up, insurance rates down. Describe your operations—temperature conditions, etc. We'll gladly recommend an economical Jomac Work Glove and send you a free sample pair. Jomac Inc., Department F, Philadelphia 38, Pennsylvania.

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# JOMAC

Industrial Work Gloves
Outwear ordinary work gloves by 900%

PLANTS IN PHILADELPHIA, PA., AND WARSAW, IND.

For More Information Circle No. 244 on Inquiry Card-Page 17

### Cleveland PAs Hear Talk on St. Lawrence Seaway

A project which will have a tremendous economic impact on the city of Cleveland was discussed at the March meeting of the Purchasing Agents Association of Cleveland. Speaker was William A. Callendine, technical assistant to the vice president of planning and development, Republic Steel Corp. His subject was "Between Two Nations," a report on the St. Lawrence Seaway which is now under construction.

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Prior to the dinner meeting there was a forum—and it was different from the usual purchasing topic. Through the courtesy of Westinghouse Electric Corporation, the film "It's Your Decision" was shown. It portrayed the problems encountered in starting up a business.

On April 28, the Association's

On April 28, the Association's educational committee arranged a very interesting plant visit. The host was the Chase Copper & Brass Corp. and the tour through its Cleveland mill was very enlightening to buyers of copper products.

### F. P. Connolly Addresses Baltimore Association

Members of the Purchasing Agents Association of Baltimore were privileged to have as guest speaker at their March meeting. Frank P. Connolly, president of John W. Masury & Son. He was introduced to members by Joseph M. Kalista, Koppers Co., who is vice president of the Association.

Mr. Connolly's topic was "A Worm's Eye View of Purchasing." He said that in almost every company some engineers and production men refuse to see the problems of the purchasing agent. They issue a requisition tomorrow and expect delivery today.

He also emphasized the importance of the purchasing profession. Nothing happens until a purchase is made. Purchasing is the big wheel about which everything revolves. He offered several poster illustrations showing the important aspects of purchasing. Closing his talk in a lighter vein, he had a few of the members don rubber face masks depicting most uncomplimentary characters. Gathering them on the speaker's platform, he pointed to each in turn and said, "Unfortunately, Gentlemen, at some time or another this is what some salesman waiting in the outer office may think of you."

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PURCHASING

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### H. E. Cooley Elected Head of Pittsburgh Association

The April meeting of the Purchasing Agents Association of Pittsburgh was election night. Chosen to lead the Association during the coming year were: H. E. Cooley, National Supply Co., president; D. A. Riggs, Westinghouse Electric Corp., vice president; Wayne Rawley Jr., Blaw-Knox Co., secretary; Frank R. King, Colonial Supply Co., treasurer; and Tom English of Aluminum Company of America will apply his experience as president to the job of national director.

Prior to the dinner meeting on April 19, there was a forum on the subject of value analysis. It was ably moderated by L. J. Smith and W. H. Bachman of Allis Chalmers and Pittsburgh Consolidation Coal

At the March meeting members were privileged to hear well known Hearst columnist and lecturer George E. Sokolsky. Mr. Sokolsky was the main feature of the Association's special Executive Night pro-

New members of the Pittsburgh Association include: R. E. Gibson, Alling & Cory Co.; Donald M. Daugherty, H. H. Robertson Co.; K. R. Braddock, Westinghouse Air Brake Co.; R. P. Green, Westinghouse Air Brake Co.; J. E. Henry, Westinghouse Air Brake Co.; Howard W. Cromie, Kerotest Mfg. Co.; and Harry B. Reno Jr., Columbia Steel & Shafting Co. The growing Pittsburgh Association now has 379 regular members and 46 associate members.

### Dayton Ass'n Products Exhibit and Executive Night

1 1 1

Plaudits are in order for Clarence L. Johnson and others who worked on the Products Exhibit of the Purchasing Agents Association of Dayton. It was one of the best yet. Highlight of the 1955 show was the Executive Night meeting which was also at the Dayton Biltmore Hotel. Guest speaker was Stuart F. Heinritz, editor of Purchasing. Mr. Heinritz discussed "The Changing Business of Buying."

The March meeting of the Dayton Association was a joint meeting with the American Society of Metals at the Engineers Club. A very informative paper on "Steel Quality and Steel Purchasing Methods" was delivered by Mr. Dave Heckert.



A good floor polish has 2 main functions. It has to protect your floors. And it has to protect the people who walk on them.

LEGGE Polishes start with Safety. Their co-efficient of friction goes up to 75% beyond Underwriters Laboratories' requirements for slip-resistance. That means the danger of slip-falls—and the liability suits which follow—are practically nil. One large institution\* which formerly averaged 8 falls a month reports no accidents in a year since changing to LEGGE.

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Repeated tests show LEGGE Polishes stay on the floor for months without the need for stripping. This added protection assures you of gleaming floors that look better, last longer and cut your costs for

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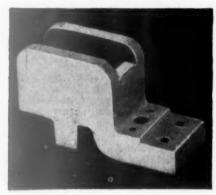
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### Cold Molded Plastics Are Still Best For Electrical and Insulation Applications





### ...and you can cut costs with **Aico Cold Molded Plastics**



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When your products call for parts with high arc resistance and proven stability at operating temperatures up to 1000° F... that's when Aico's cost-cutting cold molding process offers a money-saving opportunity. Cold Molding . . . the original plastics molding method offers high production from a low-cost, singlecavity mold. Aico pioneered the cold molding process in 1916 . . . Aico continues to offer manufacturers the latest improvements in this proven, cost-cutting process.

These control knobs, valve handles, pigtail connectors, utensil handles and other parts represent but a few typical examples of the profitable application of Aico Cold Molded Plastics. Many such cold molded plastics are available from Aico Stock molds to further reduce costs. Aico engineers are at your service to help with your specific production problems.

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### Carolinas N. I. G. P. Chapter **Elects Officers**

The Carolinas chapter of the National Institute of Governmental Purchasing held its spring meeting at the Hotel Charlotte on March 18. Officers were elected for a two-year term as follows: A. C. Shepherd, city purchasing agent, Winston Salem, N. C., president; C. E. Beatty, city purchasing agent, Charlotte, N. C., vice president; and Wade H. Hannah, city purchasing agent, Columbia, S. C., secretarytreasurer. Various aspects of purchasing were discussed by the twenty-two members who were present. Attending as a guest of the chapter was Ernest Brewer, city purchasing agent of Atlanta, Ga.

### Cost Discussed in Syracuse

Purchasing Agents Association of Syracuse and Central New York held a "triple threat" meeting on March 23 at the Hotel Onondaga. Featured speaker was Worth A. Probst, assistant controller, Carrier Corporation. His topic was "Cost and Cost Controls in Modern Purchasing." In addition, A. G. Ruediger delivered a commodity report and, last but not least, President C. A. Fowler moderated a "Shirt Sleeve Discussion."

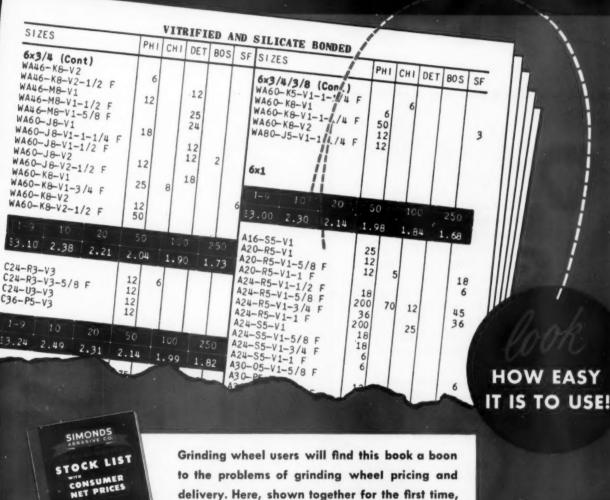
### New Orleans PAs See "It's Your Decision"

Highlight of the March meeting of the Purchasing Agents Association of New Orleans was a showing of the excellent film, "It's Your Decision." Produced by Westinghouse Electric Corp. in cooperation with the American Economic Foundation, it generated much comment by members and will not be soon forgotten by them.
Robert Elsasser, local economist

and a regular monthly speaker at New Orleans Association meetings, advised that the United States has tremendous strength and that Russia is far weaker than we assume her to be. In New Orleans business was better in 1954 than in 1953. The city is expanding rapidly and is a tremendous market for business. Big business is looking over the New Orleans area realizing its wonderful possibilities. Retail business in New Orleans is better than ever before.

Latest member of the New Orleans Association is C. S. Pugsley of Esso Standard Oil Co.

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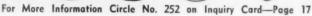












### Georgia Association Holds Past Presidents Night

The March meeting of the Purchasing Agents Association Georgia was reportedly one of the best in its history. Talent available inside the Association cannot be surpassed. Under the able leadership of Jim Clark, each of the past presidents spoke briefly on various phases of association activity, both local and national. Jim Clark reminded members that the Georgia Association was begun in 1944 and has since grown to more than 100 members. The founding president was R. N. Patrick. Other past presidents (in chronological order) include J. E. Clark, Jim Elliot, Roy Morrison, J. R. Carmichael, Charles W. Hayes, Roy W. Pitts, Graham Mitchell, C. L. Newton, and S. O. Franklin.

The February meeting of the Georgia group featured a plant visit to the General Electric factory near Rome, Ga. where medium transformers are made. No effort was spared by General Electric to make the PAs welcome and enjoy their visit

### Milwaukee Ass'n Members Hear N.A.P.A. President Ahl

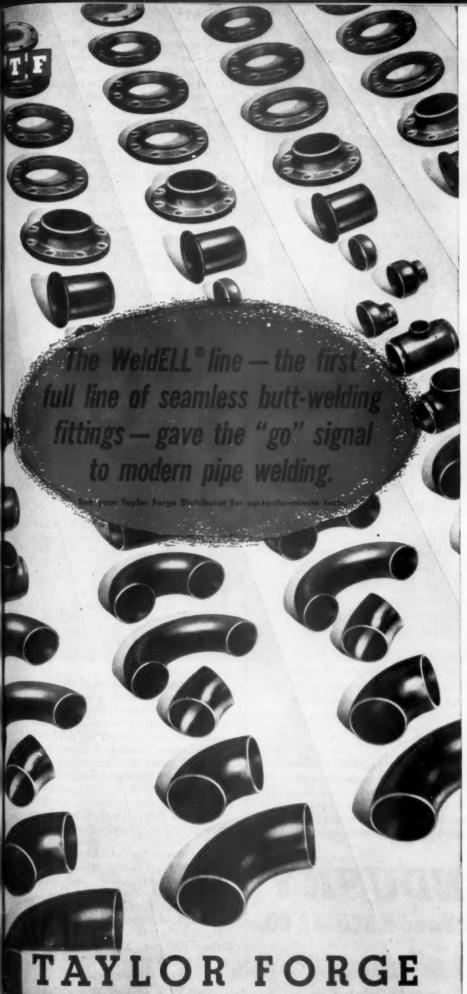
Some 191 members and guests of the Milwaukee Association of Purchasing Agents heard the national president of N. A. P. A., G. W. Howard Ahl discuss "N. A. P. A. Horizons." Mr. Ahl described the progress N. A. P. A. and the purchasing profession have made to date and the opportunities for further progress that exist.

Prior to the dinner meeting, there was a commodity discussion on the subject of "Lumber." As a result of the efforts of Dean Foote of Allis Chalmers, W. T. Loomis of the Louis Allis Co., and Dick Kupfer of T. L. Smith Co., members were able to learn something about lumber grading and how grades are determined. On hand to provide technical advice on this subject was George D. Mill, sales manager of wholesale distribution, Weyerhauser Co. In addition to Mr. Mill's talk, the color film, "Magic of Lumber," shown. It gave a fine explanation of the science of lumber grading.

On March 10, the educational committee of the Milwaukee Association sponsored a panel discussion at Marquette University. The topic was "The Purchasing Agent's Function in Inventory Control." Moder-

(Please turn to page 224)
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PURCHASING



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# We had to quit guessing in the twenties

The founder of Taylor Forge used to say that "uniformity of strength should be the final goal of every engineer"... and no doubt this kind of thinking motivated the Taylor Forge organization to take so much initiative in the development of forged steel compo-

nents for pressure piping.

The pattern was set in the twenties. Before 1920 little had been done in the way of pipe fitting and flange standardization. As early as 1905, however, Taylor Forge had produced forged steel flanges for Taylor pipe, and they had proved so superior to cast iron flanges that within a few years more flanges were being made for others than for our own use. But these forged flanges were bolted to the iron flanges of valves, pumps, and the like; so they simply followed cast iron standards.

In view of the obviously far greater strength of forged flanges, this was foolishly safe, and patently not at all in the "Uniformity of Strength" tradition. Moreover, in the twenties pressures were starting their upward climb. The 125 lb. and 150 lb. standard wouldn't do. Now it was 400; then 600; then 900 pounds. As the pioneer and leader in this field, Mr. Taylor saw the need for formulating standards and went to

work on it.

Although one of the first studies conducted in this field, his work ranks to this day as one of the most thorough jobs ever done. In this work Mr. Taylor was in touch with Mr. Sabin Crocker, who is author of today's "Piping Handbook." He also collaborated with Professor E. O. Waters of Yale. Mr. Taylor ran exhaustive full scale tests on actual flanges to provide the test data which was then analyzed and formulated by Mr. Taylor and Professor Waters. The result was the Taylor-Waters Formula, presented before the ASME in 1927.

Still found in every engineering handbook, the Taylor-Waters formula was, and is, the basic means of determining flange stress under a given condition of loading. In the years since, Taylor Forge has also played a leading part in bringing standards into correlation with broadening needs . . . but this is another

story

An episode in the story of Taylor Forge leadership in designed piping



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With a skill born of 40 years' experience, time tested in hundreds of plants, you can call on our experienced technicians with confidence. They're ready to help you with manufacturing special castings to specification or working with your staff in developing unusual types to solve new

Look to Chief Sandusky as a continuing dependable source of both ferrous and non-ferrous custom quality centrifugal castings.

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615 W. Market Street

Sandusky, Ohio

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(Continued from page 220) ator was Gilbert L. Hartman, president of Milwaukee Faucets Inc. Panel members were Carl Failmezger of Socony Vacuum Oil Co., George Altman of Maysteel Products Inc., Hans Larsen of the Louis Allis Co., and William M. Bergemann of the Falk Corporation.

On April 19, the Milwaukee Association held a joint meeting with the Rockford Association in Rockford. Members were able-according to their interests-to tour the plants of the Woodward Governor Co., the Barber Coleman Co., Twin Disc Hydraulic Division, Sundstrand Machine Tool Co. Dinner meeting was at the Wagon Wheel. It featured a showing of the popular film, "It's Your Decision."

### Dr. Neil Jacoby Addresses Los Angeles Association

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"Economic expansion now in progress promises to carry the United States to a high and satisfactory level of employment this year. It would be unwise and unnecessary for the Federal Government to stimulate the economy further by tax reductions at this time."

This view was expressed by Dean Neil H. Jacoby of U. C. L. A.'s School of Business Administration, who has recently returned from service as a member of President Eisenhower's three-man Council of Economic Advisers, at a dinner meeting of the Los Angeles Purchasing Agents Association. Dr. Jacoby expressed the opinion that the prevention of further price inflation is a more imminent economic problem than guarding against a possible recession.

Fair trade practices, purchase order clauses, legal problems, inventory control, quotation problems, and follow-up systems were discussed at the Association's March 24 luncheon meeting. A panel was arranged under the chairmanship of Gil Mirus, of the Wilco Co. and Ray Davidson of the B. F. McDonald Co. Panel members included: Comdr. H. H. Blackman, U. S. Navy Purchasing Office; Robert J. Coleman, C. F. Braun & Co.; Lou Davis, Times-Mirror Co.; Al Lama, Pabst Brewing Co.; Bill Reynolds, Los Angeles Transit Lines; and Virgil Waters, Utility Trailer Mfg. Co.

The Association's Educational Committee conducted a seminar on "Standardization and Standards Procedure" on March 17. Panel chairman Robert Coleman of C. F.

(Please turn to page 228)



Morse has always made the news in cutting tools, right from the first twist drill. Consistent improvements in design, production and service . . . and most recently the biggest tap news ever headlined: The exclusive Morse "Vectormatic" Ground Taps that are ground to closer tolerances than can be held under now obsolete grinding methods. So now you can have ultra-precision taps at commercial prices.

And all these newsworthy developments are brought to you immediately by your Morse-Franchised Distributor... to boost your production and cut your tool costs with more (and more accurate) holes per dollar. What's more, he has the practical know-how to apply the right Morse Tools to your cutting operations, and get you the top return for your investment.

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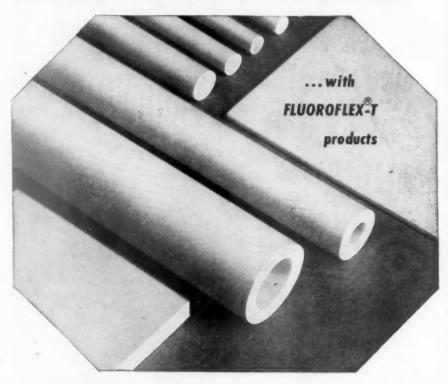
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(Continued from page 224)

Braun & Co. presented the following speakers: Harlan Eastman. Clary Multiplier Co.; Henry Robinson, Hughes Aircraft Co.; W. T. Lines; and Frank Ziol, Consolidated Engineering Corp. All phases of standardization were discussed including case studies on standardization of equipment and materials forms and procedures, how to interest a group in standardization, and how to set up a standards program.

### Standards Discussed in R. I.

On Monday, March 28, the Rhode Island Purchasing Agents Association had another banner forum discussion. This time the topic was "Standards Can Be Simple." Leader of the discussion was Charles T. Hafey, purchasing agent of Charles Pfizer & Co. of Groton, Conn. He presented a practical simplified approach to the problem of standardization which, if applied, should prove most profitable to members who attended the forum.

Following dinner, PAs saw the much discussed film, "It's Your Decision." It is the story of three ex G. I.'s who start into business for

themselves.

### Theme Selected for Sixth **District Conference**

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Last January each member of a Purchasing Agents Association in the Sixth N. A. P. A. District was notified of a "Name the Theme" contest for the Sixth District Conference which will be held in Pittsburgh October 14 and 15, 1955. As a result, more than 100 themes were submitted. Winner of the contest is Ralph O. Keefer, general purchasing agent, Aluminum Company of America. His theme is "Come and Mix with District Six." As a prize, Mr. Keefer will receive two conference registration tickets for himself and his wife.

C. Warner McVicar, general conference chairman, has announced that the Hotel Webster Hall has reserved 200 rooms for persons attending this conference. All meeting rooms and dining rooms for the conference are completely air conditioned and will accomodate 450 people. A. B. Wadsworth, chairman of arrangements, has arranged for registrations to include three meals on Friday and breakfast on Saturday.

(Please turn to page 232)

### BRIDGEPORT BRASS COMPANY

# COPPER ALLOY BULLETIN

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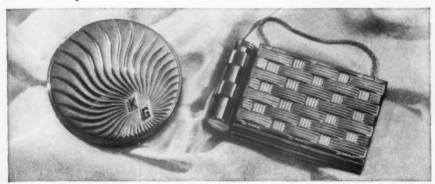
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Reporting new developments in copper-base alloys and metalworking methods.



Bridgeport High I. Q. Brass gives rich gold color, high gloss finish to stylish vanity and lipstick cases. (Courtesy, Zell Products Corp., Norwalk, Conn.)

# Beauty in Brass: A Story of the 4th Dimension

"Rich as gold," describes the deep warm color of Bridgeport 87 Brass. And, "polished as a mirror," describes the lustrous finish Zell Products Corp., Norwalk, Conn., gives to its line of vanity and lipstick cases. The success of this story belongs to the High I. Q. (Inner Quality) of Bridgeport brass strip, and the 4th Dimension, its optimum grain size.

The cases are made primarily by blanking, stamping and cupping thin strips of brass (Alloy 87); 87% copper, 13% zinc. Therefore, a certain amount of ductility is essential in the metal. The mirror-smooth polish is brought out by buffing, which calls for a fine grain size. The combination of these two qualities is a finely-balanced compromise to bring both properties to ideal working requirements.

Bridgeport supplies this exceptionally smooth metal, tailored to the customer's requirements—I/8th hard and light anneal temper, with .015 mm grain size. Metal of this temper provides an extremely smooth surface after forming which may be buffed to a high gloss with a minimum of labor and time. It has an ideal combination of ductility and ability to take a high polish for a great many profitable applications.

Many other combinations are also available, each suited to a particular range of forming and buffing requirements. So ask your Bridgeport Technical Service representative to assist in your metal selection. Make sure of the 4th Dimension—the right grain size to meet both product needs and production methods, for no one fine-grain brass does all jobs well.

#### Bridgeport Phosphor Bronze Makes Tough, Long-Wearing Clutch Plates

Since 1929, the Rockford Clutch Division of Borg-Warner Corp., Rockford, Ill., has used Bridgeport Phosphor Bronze Grade A (Alloy 36) for clutch outer discs in their Pullmore Multiple-Disc Clutches. They have used this alloy consistently because of its outstanding strength and superior resistance to wear under severe operating conditions, another example of properties assured by the High I. Q. (Inner Quality) of Bridgeport alloys.

The alloy is supplied by Bridgeport in strip form, rolled to an extra spring temper of 9 B&S numbers hard, and having correct surface finish to meet specifications. Automatic machines stamp blank discs, 13/4 in. to 107/8 in.

in diameter, from three thicknesses of strip; .062 in., .092 in. and .125 in. Each is then pierced with a large hole for the clutch shaft and with a series of small holes around the working periphery of the clutch disc. They are then flattened, heat treated to 500°F. The small holes are impregnated with graphite to complete the part.

The clutches in which these discs perform are used on main drives, auxiliary controls, and power take-off mechanism to obtain forward and reverse movements, or high and low speeds. They serve as both clutch and brake, and therefore must be rugged.



Clutch discs of Bridgeport High I. Q. Phosphor Bronze have high strength and wear resistance in heavy-duty service. (Courtesy Rockford Clutch Division, Borg-Warner Corp.)

Composed of approximately 95% copper and 5% tin, Bridgeport Phosphor Bronze Grade A (Alloy 36) has high resistance to fatigue and wear from rubbing against other materials, excellent spring properties under repeated flexing, and greater resistance to corrosive attack than most brasses and copper.

This alloy is also recommended for use in metal bellows for temperature and pressure control instruments, clutch discs, bridge bearing plates, screens and beater bars in many of the process industries; snap switches, spring contacts and other parts for electrical and electronic equipment.

For even more severe service, Bridgeport Phosphor Bronze Grade C (Alloy 35), composed of 92% copper and 8% tin, would be the preferred alloy. High I. Q. metals are produced with Inner Qualities to meet the most rigorous specifications of the industry. (3138)



# BRIDGEPORT BRASS

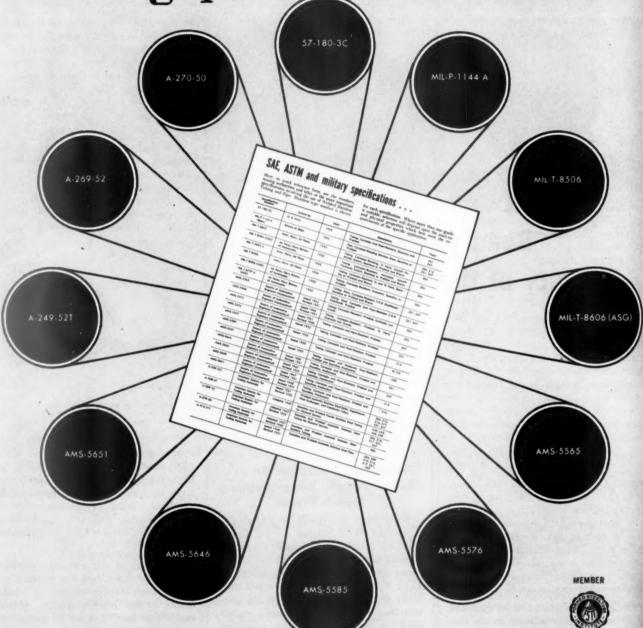
Mills at Bridgeport, Conn., Indianapolis, Ind., and Adrian, Mich. Sales Offices in Principal Cities— Conveniently Located Warehouses

For More Information Circle No. 260 on Inquiry Card-Page 17

MAY, 1955

# For Specification Satisfaction ...

insist on *Carpenter* Stainless Tubing & Pipe



Proving that there is a difference in stainless tubing and pipe is a matter of pride at Carpenter. The difference is measurable in Carpenter's adherence to rigid standards of analysis, dimensions, finish, tolerance, concentricity and ductility. For complete "specification satisfaction", look to Carpenter Stainless Tubing and Pipe.

The Carpenter Steel Company, Alloy Tube Division, Union, N.J.



**Stainless Tubing & Pipe** 

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You can simplify purchasing . . . improve design . . . speed production

# with improved C-D-F DILECTO laminates

Only C-D-F, the Continental-Diamond Fibre Company, makes Dilecto laminated plastic, just as only Cadillac makes a Cadillac. Dilecto is 50 different materials with more combinations and variations in desired properties than we can tell you here.

But Dilecto has three important qualities that you should think about if you buy, design, or machine laminated plastics.

#### DILECTO HAS HIGH MECHANICAL STRENGTH

Mechanical strength is frequently an important determining factor in the selection of an insulating material. Insulating parts used in large electrical power equipment are frequently bulky. The high mechanical strength of Dilecto helps reduce size-dimensions of insulating parts without danger of failure. Instruments, meters and small motors frequently require very small insulating parts which must withstand comparatively large mechanical stresses. Insulation for use in high frequency circuits should have a minimum bulk factor for minimum dielectric losses. Dilecto fulfills these requirements with a combination of high mechanical strength and low loss factor, characteristic of the better C-D-F electrical grades.

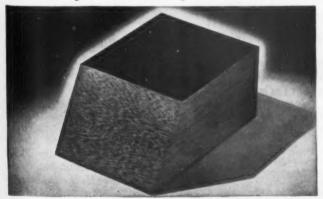
So C-D-F selects for your Dilecto insulation grade the correct, highest quality base material, paper, cotton, nylon, glass. These are used in combination with improved penetrating resins: Improved Phenolic, New Melamine, New Silicone, New Teflon, all synthetic, well polymerized resins.

Both the base and the resin are good insulators by themselves. But C-D-F sells them to you in an improved, practical form ... Dilecto. Uniform sheets, tight tubes, strong rods, close tolerance machined and formed specialties, high bond strength metal clads.

Why does Dilecto combine so well mechanical strength with dielectric strength and dimensional stability? Because Dilecto is almost homogeneous, a true blend of resin and base.

## DILECTO IS ALMOST HOMOGENEOUS

A poor laminate absorbs moisture at its edges, loses its insulating properties fast. Entrapped moisture and other volatiles within the cured structure causes inconsistent dielectric strength, with ultimate puncture and breakdown.



Punch press and bench saw operators know how much time and material is saved when the laminated plastic is uniform and homogeneous in nature like Dilecto.

DILECTO IS IMPROVED

Yes, C-D-F Dilecto is an improved laminated plastic, due to high standards and advances in resin and manufacturing techniques. It is watched by skilled workers in our modern plants, checked against rigid standards . . . C-D-F standards . . . by our quality control people. It is easy to machine, and the C-D-F shops are doing a booming business in specialties.

## Table I—Typical Improved Phenolic Laminates

Commercial designation <sup>a</sup>	Resin	Filler	Improved properties	Improve- ment due to:
MEC-5	Phenolic	Nylon fabric	Insulation re- sistance; mois- ture resistance	Filler
XXHV-2b	Phenolic	Paper	High dielectric strength paral- lel to lamina- tions	Resin and manufac- turing technique
CRD	Phenolic	Cotton	Better ma- chining	Filler
XXXP-26 <sup>b</sup>	Phenolic	Paper	Insulation re- sistance; mois- ture resistance	Resin and manufac- turing technique
C-92	Xylenolc	Cotton fabric	Alkali resist-	Resin
CF	Modified phenolic	Cotton fabric	Postforming	Resin

a All grades are Continental-Diamond Fibre Company.

Besins have improved penetrating properties and the manufacturing techniques use these properties to provide better impregnation of the filler. Since thorough impregnation eliminates entrapped moisture and air, greater moisture resistance and better dielectric properties are attained. Manufacturing techniques also provide suitable temperature control during the curing stage to assure uniform quality and optimum property values in the finished laminate.

C Xylenol is essentially a dimethyl phenol.

-from Electrical Manufacturing Article "Wider Design Opportunities with the NEW Phenolics", Part II.

The next time you think of laminated plastics, the name to remember is C-D-F Dilecto. The improved, high strength, uniform material that makes insulation buying and using more a science, less a puzzle. New grades, new applications, new savings are just part of the Dilecto



success story. Look up the facts in Sweet's Design File, or write for catalog. Send us your blueprint for quotation . . . tell us your design dream...C-D-F wants to work with you.



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SING

# PAGE Chain FENCE America's First Wire Fence—since 1883

Play Safe-Protect with PAGE. the Quality Fence!

• Security against the ever-present hazards that can damage or destroy property, or injure persons, is a responsibility to assign to PAGE Fence. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Circle No. 263 on Inquiry Card-Page 17





Handle more cars better — spend less to install and maintain with Relayers from Foster. "Open-stock" shipments from Foster warehouses, all sections 12# thru 175# — plus Switch Materials and Track Equipment items.

Send catalogs Rails Track Equipment
Send Free 'Track Maintenance' Book P-4

RAILS - TRACK EQUIPMENT - PIPE - PILING



CHICAGO 4 HOUSTON 2 LOS ANGELES 5

For More information Circle No. 264 on Inquiry Card—Page 17



When you need tubular rivets, you want them GOOD and you want them FAST. 5 Milford plants and 20

Milford offices see that you always get BOTH!

WILFORD

RIVET & MACHINE CO.

Plants: Milford, Conn.; Norwalk, Calif.; Elyria, Ohio; Aurora, III.; Hatboro, Pa.

Offices: Atlanta, Chicago, Cleveland, Detroit, Fort Worth, Indianapolis, Newark, New York, Pittsburgh, Racine, St. Louis, St. Paul, San Francisco, Seattle; Norwalk, Calif.; Stratford, Conn.; Charlotte, N. C.; Seneca Falls, N.Y.; Jenkintown, Pa.; Westwood, Mass.

Headquarters for RIVETS

tubular split and special cold-formed and Rivet-setting Machines

For More Information Circle No. 265 on Inquiry Card—Page 17 (Continued from page 228)

T. O. English, program chairman, will announce the conference speakers sometime this summer and registration forms will be available early in September. The District Council meeting for the Sixth District will be held Thursday afternoon, October 13 at 1:30 P. M., immediately preceding the conference.

#### **Dallas Association Activities**

The great Southwest is growing and the Purchasing Agents Association of Dallas is growing right along with it. New members of the Association include: A. B. Fischer, Continental Gin Co.; R. T. Hill, Texas Lawn Sprinkler Co.; Carl McCleskey, Southwestern Life Insurance Co. Osborne Fernald, Centex Construction Co.; Edmund Desmond, Varo Manufacturing Co.; and M. H. Zitoon, American Seating Co.

One reason for the growth in membership may well be the outstanding programs put on by the Association. Here are a few examples. On March 10, there was a tour of the spanking new Buick-Olds-Pontiac assembly plant of General Motors Corp. in Arlington, Texas. On March 24, members saw the DuPont sound color film "Spindle Top" depicting the drilling of the first producing oil well in Texasthe beginning of a great multibillion dollar Texas industry.

On April 14, members elected new officers and heard a talk by J. E. Jonsson, president of Texas Instruments Inc. Mr. Jonsson was president of the Purchasing Agents Association of Dallas in 1938.

On April 22, members relaxed at their Annual Golf Stag. It was held at Glen Lakes Country Club. Everyone agreed that committeemen Ray Elkins, Jack Lane, J. L. Kocyan, Travis Tucker, Dave Kennington, Ray Langford, and Jack Castles did an outstanding job.

## Joint Meet in Kalamazoo

Kalamazoo Valley Association of Purchasing Agents and the Kalamazoo Sales Executives Club held a joint meeting recently. Guest speaker was Dr. John A. Hannah, president of Michigan State College. Dr. Hannah described some of his experiences as chairman of the United States section, Permanent Joint Board of Defense, U. S.-Canada. He outlined the history and operation of the joint U. S.-Canadian air defense network.

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PURCHASING



# ACCUMET PRECISION INVESTMENT CASTINGS





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#### Here are some of the more popular grades used for Crucible ACCUMET precision castings

AISI 1010 - Magnetic Iron

AISI 1020 - Low Tensile

AISI 4620 - Carburizing

Med. 4140 - Medium to High Tensile

Ketos Oil-Hardening Tool Steel

HYCC Air-Hardening Tool Steel

Rezistal 410 - Hardenable Stainless

Rezistal 303 - Free Machining Stainless Rezistal VT - AMS 5385B High Temperature

Rexalloy - Cr-W-Co Alloy

**Alnico Magnets** 

# are available in all steel and high-alloy grades...

Whatever the grade of steel or high-alloys your specifications call for, you can get it in Crucible ACCUMET® precision castings.

And you can depend on the quality of ACCUMET castings, for they are made by the Country's leading specialty steel producer . . . to long established steelmaker's melting standards, in modern electric furnaces. The composition of ACCUMET is carefully controlled by chemical analysis of the casting - not merely of the remelt stock charged into the furnace. This extra control of analysis means better uniformity in response to heat treatment, hardenability and performance.

Put an end to costly machining of parts. Let your Crucible representative show you how ACCUMET precision investment castings can save you time and money.



CRUCIBLE first name in special purpose steels

# **ACCUMET PRECISION CASTINGS**

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA. REX HIGH SPEED . TOOL . REZISTAL STAINLESS . ALLOY . MAX-EL . SPECIAL PURPOSE STEELS

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MAY, 1955

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## Twin City Activities

At the March meeting of the Twin City Association of Purchasing Agents members were privileged to have as guest speaker, N. A. P. A. President Howard Ahl. Mr. Ahl discussed the progress made by the purchasing profession since the founding of N. A. P. A.

Prior to the dinner meeting, there was a forum dealing with "The Economic Ordering Quantity." Serving as moderator was W. E. Welch of Minneapolis Honeywell Co. The subject, a pertinent one to the activities of every PA, provoked a stimulating discussion from the members present.

## Metropolitan Purchasers Meet

Topic of the March meeting of the Metropolitan Purchasers' Assistants Club was "Material Handling Equipment" and it was a useful one indeed. Materials handling is a problem common to every business, large and small, and it can be a costly one if not handled with proper equipment. On hand as guest speaker was A. A. Moore, president of A. A. Moore Distributors. In addition, there was a sound color film to highlight Mr. Moore's talk.

## Southern Conn. Ass'n Meets

It was a top notch program—and almost an all-day one-for members of the Southern Connecticut Purchasing Association. For the afternoon, Edwin Cunningham of Conde Nast Publications arranged a trip through his company's excellent printing facilities in Greenwich. At the evening dinner meeting in Stamford, the group was privileged to have as guest speaker, the Honorable Albert P. Morano, Congressman from the Connecticut Fourth District. Mr. Morano discussed current affairs from the point of view of a representative of the people.

#### Program Aids

"Extending the Range of Modern Surface Grinding" is a new 16mm sound color film that provides a liberal education in the relatively unfamiliar but highly profitable phases of surface grinder operation. To arrange for a showing of this film, write: Film Division, The Do-ALL Co., Des Plaines, Ill.

A new 15-minute sound 16mm (Please turn to page 241)

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# AIRCO items for flame cutting

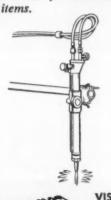
The Airco 3000 Series Cutting Torches have the same rugged design features as the 9000 Series (shown at left). The principal difference is that the high-pressure oxygen control mechanism is designed so the cutting oxygen can be eased on gradually. This is particularly helpful in hole piercing, rivet washing, or rivet and stay bolt cutting.

The 3000 Series is also suitable for general purpose cutting of steels ranging from thin gauge to 12" thicknesses.



Airco two-hose and three-hose machine cutting torches are designed for use with standard Airco tips. The two-hose torches are for light and medium machine gas cutting primarily with Airco portable gas cutting machines like the Radiagraphs and Monographs.

The three-hose torches are for use with large Airco shape cutting machines such as the Duograph, Oxygraph, and Travograph. Write for literature on these items.



O TELLOW

VISIT BOOTH 254 (Continued from page 236) sound film is said to be a "visual report" describing the "How to . . . ." of use and application of butyrate peelable plastic for packaging such products as gears, pistons, crankshafts, connecting rods, fine tools, gages, and measuring instruments. Step by step, the film portrays application of the product. It is available for loan from Eastman Chemical Products Inc., 260 Madison Ave., New York 16, N. Y.

# Association to Publish Guide for Buying Wooden Pallets

The National Wooden Pallet Manufacturers Association, Washington, D. C., has just approved a project to publish a set of grading and inspection rules, which will furnish a valuable guide for pallet purchasers.

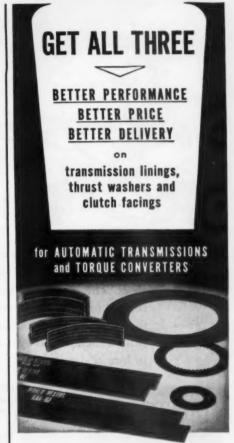
The grading and inspection rules will be used in conjunction with the NWPMA Grade Mark and Minimum Standard Specifications for warehouse pallets. The inspection rules will provide a medium whereby industry can readily ascertain if they have obtained full value for their pallet dollars, and will be written in language readily understandable to all. A committee has been appointed to prepare these rules, and NWPMA hopes to have them ready by mid-1955.

## Heat Treated Steel Withstands Pressure of 280,000 psi

Heat treatment of steel so that it withstands pressures of 260-280,000 pounds per square inch enables California manufacturers to increase the size of commercial or military aircraft without increasing the weight of existing parts, A. V. Luebbers, Jr., and R. H. Lundquist of the California-Doran Heat Treating Company told a technical meeting of the 23rd annual meeting of the American Society of Tool Engineers recently.

"The specifications written to cover heat treating steel to this strength level are extremely rigid and exacting. It can readily be seen that for any part operating under such stress conditions, improper heat treatment would be catastrophic", they said.

Luebbers, California - Doran's chief metallurgist, discussed the various methods of hardening steel by heat treating. One of the methods he described was the heating of steel in melted salt in pots which are heated externally or by means of immersed electrodes.



# Your Best Bet is WORLD BESTOS

—Specializing in the manufacture of fine friction materials for over 30 years!

Finer friction formulas, developed exclusively by World Bestos, assure superior performance in dry or oil-bath operation. Flat, flexible strips, rigid curved segments, centerperforated discs or other molded shapes developed and manufactured to your specifications. Also industrial brake friction materials; spring liners; inserts and snubbers. World Bestos' broad experience and extensive production facilities offer attractive price and delivery advantages.

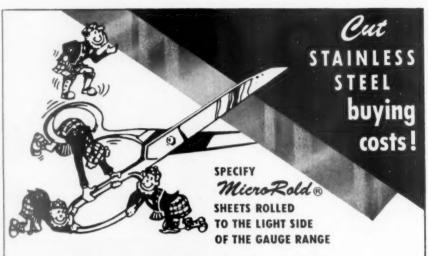
 Send prints or specifications for price and delivery information to WORLD BESTOS, Industrial Products Section, New Castle, Indiana; Phone 2360.



DIVISION OF THE

Firestone

For More Information Circle No. 274 on Inquiry Card—Page 17



Washington Steel's production methods provide new economies in the purchase of stainless sheet. The controlled accuracy of gauge in the rolling process gives you more area per ton or the equivalent area with lesser weight. This close adherence to specified gauge also results in longer die life.



Your steel warehouse distributor will gladly tell you the Micro-Rold Story.

Detroit 1, Michigan

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For More Information Circle No. 276 on Inquiry Card-Page 17

## **New York Association Hears** Advertising Executive

The March meeting of the Purchasing Agents Association of New York provided the members with an opportunity of investigating two diverse interests of purchasing-the small order problem and methods of being creative. During the afternoon forum Warren V. Duke, manager of purchases, Atlantic Division, American Can Co., addressed a large gathering of the PA's on the small order problem. Outlining the methods his company uses to combat the problem, Mr. Duke pointed out that only through the recognition of the individual company's involvment in small orders, can a practical step be taken toward an eventual solution. After the regular dinner affair, the members of the New Rork association heard Willard A. Pleuthner, vice president, Batten, Barton, Durstine and Osborn, speak on "Ways To Be More Creative". Drawing on his experiences in the advertising field, Mr. Pleuthner explained his formula for increasing the power of knowledge through creative application.



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PURCHASING

1342 W. Vernor Highway



PRECISION MEASURING

Showing the complete line including many important new tools

DIAL INDICATORS

Including the complete new line of High Precision — Low Friction Dial Indicators

HACKSAWS, BAND SAWS AND BAND KNIVES

Production-proved for maximum cutting performance and economy

PRECISION GROUND
DIE AND FLAT STOCK

In a complete selection of 4 types, 295 sizes — air, oil, oil or water and water hardening.

# big, new catalog

Presenting the world's most complete line of mechanics' hand measuring tools and precision instruments, dial indicators, steel tapes, hacksaws, band saws, band knives and precision ground die and flat stock. Completely revised and brought up to date to commemorate Starrett's Diamond Jubilee of Precision Toolmaking — including 85 new tools added since the previous edition.



SINCE 1880...WORLD'S GREATEST TOOLMAKERS

# get your FREE copy

Ask your Industrial Distributor or send the coupon for your free copy.

THE L. S. STARRETT COMPANY Dept. P. Athol, Mass., U. S. A.

Please send my free copy of the big, new Starrett 75th Anniversary Catalog.

Name.....Position....

Company

Address....

City......Zone....State.....

VISIT THE STARRETT EXHIBIT, BOOTH NO. 60, QUALITY CONTROL CONVENTION, NEW YORK, MAY 23-25

For More Information Circle No. 278 on Inquiry Card-Page 17

May, 1955

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# Personalities



# IN THE NEWS

Three promotions have been an-nounced by J. H. Lambrix, Vice President and Director of Purchases of The Electric Auto-Lite Co., Toledo, Ohio, They are Ralph A. Steude, named Assistant General Purchasing Agent of the company's Battery Division; W. H. Suddath, appointed Purchasing Agent of the Vincennes, Ind., battery plant, replacing Mr. Steude, and Max O. Martin, made Purchasing Agent of the Wire and Cable Division at Port Huron, Mich. Mr. Steude has been associated with Auto-Lite for 12 years, serving in the Prest-O-Lite purchasing department in Indianapolis before being transferred to Vincennes as purchasing agent in 1947. Mr. Suddath has been with the company since 1942, leaving for awhile during World War II. When he returned, in 1948, he was transferred to Auto-Lite's Hazelton, Pa., plant. He was named assistant purchasing agent at Vincennes in 1954. Mr. Martin joined Auto-Lite at Port Huron in 1937 as a time clerk. He became a planning manager in 1943 and assistant purchasing agent in 1951.

New fabricating facilities of The Plume & Atwood Manufacturing Company were dedicated before a large crowd at Thomaston, Conn., on March 30. The Fabricating Division, which stamps and forms non-ferrous metals, steel, and alloys into a variety of products, is housed in the modern one-story plant, which encloses an area of 150,000 square feet. Among the principal speakers at the dedication ceremonies were Connecticut Governor Abraham Ribicoff, and Thomas I. S. Boak, president of Plume & Atwood.

The election of T. C. Banta as Vice President and a Director of Sinclair Refining Co., New York, and Director of Purchases of the Subsidiary companies of Sinclair Oil Corp., has been



T. C. Banta

announced. Mr. Banta has been a member of the Sinclair organization since 1930, starting in the central engineering department of the company's East Chicago, Ind., refinery. He transferred to the purchasing department in New York in 1938 and was appointed purchasing agent in 1950.

The National Broadcasting Co., New York, has appointed Randall R. McMillan as Purchasing Agent. Mr. McMillan succeeds William D. Bloxham, who has retired after more than 25 years of service with the company. Mr. McMillan has been manager of purchasing for RCA Communications, Inc., since February, 1953. He joined RCAC in 1945 as assistant to the construction superintendent and in May, 1952, became a design engineer.

(Please turn to page 246)



Anson Incorporated, Providence, announced some recent changes in its purchasing organization. Left to right are: Douglas Fielder, recent returnee from the U. S. Coast Guard who is now Assistant Purchasing Agent; W. W. Whitfield, newly named Director of Purchases and Quality Control; and David Ringland, formerly Assistant Purchasing Agent, is now Mr. Whitfield's successor as Purchasing Agent.

MA

# THE ORIGINAL!

still
the
sales-leader!
Riegel

"PLASTIC-DOT"

FIRST!...to hit the market—the Riegel "Plastic-Dot." The first really new work glove in years!

FIRST!... and the only work glove that's unconditionally guaranteed to give more than double the wear—the Riegel "Plastic-Dot!"

**FIRST!...** to give your workers a long-wearing glove that is also soft, flexible, comfortable—the Riegel "Plastic-Dot!"

FIRST!...in money-saving—that's Riegel "Plastic-Dot!" A huge success from the start, this amazing Riegel glove grows in popularity every day!

**NOW!...** check your stock of Riegel "Plastic-Dot." Be sure you have plenty on hand! Or, if you are not at present using "Plastic-Dot," contact your nearest distributor or write for complete information.



Textile Corporation · 260 Madison Avenue · New York 16, N. Y.

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For More Information Circle No. 279 on Inquiry Card-Page 17



# Twice the performance at half the cost!

The Jacobs Model 91 Spindle Nose Lathe Chuck delivers from two to four times more torque than any split steel collet chuck and costs less than half as much on a complete-with-collets basis.

Here is the performance of the Jacobs Model 91:

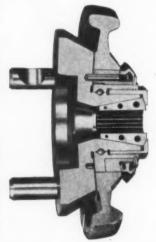
Unequalled Gripping Power. Model 91 has 2 to 4 times the grip of present split steel collet chucks.

Capacity. Model 91 chucks any bar between 1/16" and 1-3/8". 11 Rubber-Flex collets cover the gripping range of as many as 88 steel collets formerly needed.

Unequalled Accuracy. Model 91 is the most accurate collet chuck in the world today.

Durability. Model 91 has a solid aluminum hand wheel. The forged body and all other chuck parts are hardened and ground alloy steel.

The Spindle Nose Lathe Chuck and the complete line of Jacobs Chucks are stocked and sold by industrial distributors everywhere. See yours, or write Jacobs Manufacturing Co., 1905 Jacobs Road, West Hartford 10, Conn. Ask for Bulletin 54A-LC.



# JACOBS AND YOUR LOCAL DISTRIBUTOR

are ready to deliver the chucks you need and the service you deserve.

first in chucks . . . first in service



CHUCKS

The promotion of H. W. Bulgrin to Purchasing Agent in Charge of Office Equipment and Supplies, has been announced by Allis-Chalmers Mfg. Co., Milwaukee.

National-Standard Co., Niles, Mich, has named James A. Mogle, Jr., as Vice President, Purchasing and Reciprocal Relations. Mr. Mogle joined National-Standard in 1941, becoming purchasing agent in 1943. In 1949 he was named director of purchases and, in 1951, became director of purchases and manager of operations, Niles Division. He was one of N.A.P.A.'s district vice presidents in 1950-51.

Marshall E. Munroe has been named Director of Procurement of Massey-Harris-Ferguson Inc., Racine, Wis. He replaces A. A. Thornbrough, who has



M. E. Munroe

been promoted to vice president of Massey-Harris-Ferguson Limited, Toronto. Mr. Munroe has been director of procurement of the Detroit operation of the company. He joined Harry Ferguson, Inc., in 1939 as a factory representative at Cleveland.

The appointment of Leonard G. Taggart as Chief Purchasing Agent has been announced by the Radio and Television Division of Sylvania Electric Products Inc., Buffalo. He will headquarter at the division's TV assembly plant in Batavia, N. Y. A member of the Sylvania organization since 1932, Mr. Taggart has been the company's director of purchasing since 1948. Mr. Taggart's transfer from a corporate to a divisional assignment resulted from a decision to place greater emphasis on the purchasing function at the divisional level, in line with the company's policy of decentralization of operations, according to the general manager of the division, Howard E Riordan.

Charles Leister has been elected Vice President in Charge of Purchasing of The Nestle Co., Inc., White Plains, N. Y. Mr. Leister has been with Nestle for more than 35 years, and has been purchasing agent since 1930.

M

For More Information Circle No. 280 . ←on Inquiry Card—Page 17



# for special electric mo

Necessity created the Pesco DC and high frequency AC Electric Motors. Because Pesco could not get motors to meet its strict requirements, you can now buy better motors for your special applications.

Pesco engineered and developed this line of 1/100 to 11 horsepower motors to answer the need for completely dependable operation under critical conditions. Pesco Electric Motors assure optimum performance and efficiency throughout a long service life. They combine maximum power with minimum size and weight, yet withstand rugged environmental extremes. These motors are now available to you.

Both DC and AC types are made in five "coordinated frame" sizes which permits use of standardized parts having known characteristics. This expedites design and speeds delivery of motors built to your exact requirements.

Pesco high quality motors have many features not found in ordinary motors . . . such as dynamically balanced rotors, high strength alloy shafts, extremely tight windings, advanced-design brush rigging, multiple impregnations, brush material selected for specific use, high capacity sealed ball bearings and special insulations. If you are looking for a good source for special purpose electric motors, look to Pesco.

To learn more about Pesco Motors for industrial or aircraft uses, call in a Pesco sales engineer . . . or send for a brand new technical bulletin. Write: PESCO, 24700 North Miles Road, Bedford, Ohio.



BORG-WARNER CORPORATION 24700 NORTH MILES ROAD

For More Information Circle No. 283 on Inquiry Card-Page 17

MAY, 1955

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# CLEVELAND

We manufacture tubing of every kind, type and size in chipboard, jute or kraft . . . in diameters up to 24" . . . in lengths and wall thicknesses as desired.

For added protection all such tubes may be wax impregnated or lined with special grease-proof or anti-corrosive papers.

We can print direct on tubes up to 3" in diameter. Preprinted papers can be furnished for all tubes regardless of diameter or length.

For many ELECTRICAL uses we supply tubes of high grade, chemically pure, dielectric kraft paper, fish paper, cellulose acetate, or other similar films for the component parts of insulators, spacers, coil forms, condensers, capacitors, resistors, etc.

For special electrical grades of laminated phenolic tubing, please send for brochure on "CLEVELITE."®

Why pay more? For Good Quality . . . call Cleveland!

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WEST HARTFORD, CONN.

The Williamson Candy Co., Chicago, has named Roswell N. Rolleston as Vice President in Charge of Purchasing. He has been head of the Williamson purchasing department since 1933.

The appointment of J. O. Harris as Assistant Vice President, Purchasing,



J. O. Harris

has been announced by Inland Container Corp., Indianapolis. Mr. Harris had been assistant to the vice president, purchasing.

John J. O'Keefe and James E. Zink have been appointed to new managerial positions in the purchasing division of Eli Lilly and Co., Indianapolis. As manager of animal products purchases,



J. J. O'Keefe



J. E. Zink

Mr. O'Keefe brings a background of eight years' work in purchasing gland and other animal products used in the manufacture of Eli Lilly products. As manager of the newly established equipment and supplies purchases department, Mr. Zink is responsible for purchasing mechanical equipment and miscellaneous supplies and for plant salvage activities.

P. F. Mitchell has been named Pur-Agent for Elwell-Parker chasing Electric Co., Cleveland. Formerly purchasing agent for Trabon Engineering Corp., he more recently held the same post with Diamond Building Products

The appointment of a Purchasing Agent for the St. Lawrence Seaway authority has been announced. Thomas O. Morse of the Brompton Pulp and Paper Co., Montreal, has been named to the post.



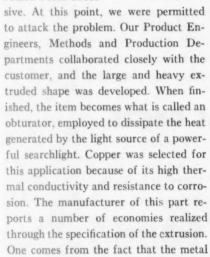
# **BUSINESS IN MOTION**

# To our Colleagues in American Business ...

It is almost always the fact that an extruded shape costs more per pound than metal in a standard form, and that it offers economies only because it materially reduces machining. Now Revere reports an unusual case in which an extruded shape actually costs 25 cents less per pound, so that it saves money in first cost as well as in finishing. Thus this shape, which is a large one, weighing 62 pounds per foot, offers compound economies.

The illustration shows the shape as

supplied to a manufacturer. It is a preformed disc 1%6" x 5", pickled and ready for finishing operations, which include drilling bolt holes and cutting cooling fins. The customer had previously tried plate and bar, and found costs exces-



is dense and uniform, due to the high pressure required by the extrusion process; thus it is machined quickly and perfectly, with almost no rejects. As a secondary result of this, the customer does not have to keep excess metal in stock to take care of spoiled parts, and the inventory of metal is less than would be required otherwise. Scrap due to machining is much less, since details parallel to the axis of extrusion are preformed, and only the holes and slots at angles to

the axis have to be produced by machine tools in the customer's plant. Also, Revere supplies the slugs in the correct thickness, eliminating a cutting-off operation for the customer. Incidentally, we are glad to supply extruded

shapes either in slugs or long lengths; the choice between the two depends upon various factors, such as the machine equipment in a customer's plant, and the production work already assigned to it.

Revere offers extruded shapes in copper and copper-base alloys, and aluminum alloys. They can save money. However, if you do not purchase such metals, please remember that your suppliers may be able to furnish you their materials, no matter what they are, in special ways or forms, to effect economies. It would be a good idea to consult them in detail and make sure to take advantage of everything they can offer you.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N.Y.

D. Francis Finn, Purchasing Agent of Brown University, Providence, has accepted a position as Purchasing Agent of Purdue University, Lafayette, Ind., according to an announcement



D. F. Fint

from both universities. He was named purchasing agent at Brown in 1948. A vice-chairman of the New England group of the National Association of Educational Buyers, Mr. Finn is also a former secretary of the organization. He is a member of the board of directors of the Rhode Island Association of Purchasing Agents and served as educational committee chairman in 1948.

Lukens Steel Co., Coatesville, Pa., has appointed Albert W. Gudal as Assistant Purchasing Agent. Mr. Gudal joined Luken's purchasing operation



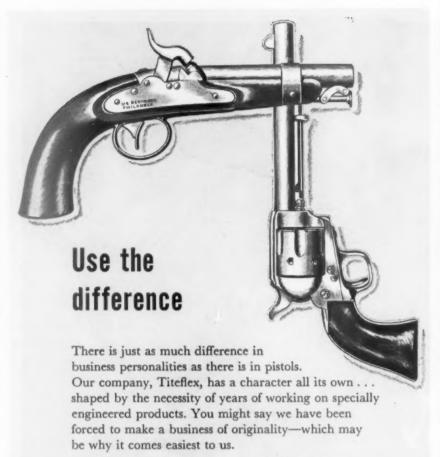
A. W. Gudal

in 1947, and since 1952 has been supervisor of planning and controls. He is the present treasurer of the Purchasing Agents Association of Wilmington, Del.

The appointment of John J. Davis as Purchasing Agent has been announced by Pierce & Stevens, Inc., Buffalo. It was also announced that T. S. Buss has been named Assistant Purchasing Agent, the post vacated by Mr. Davis. Mr. Davis joined Pierce & Stevens in 1936 as a clerk and was transferred, in 1944, to the purchasing department. He is also a past secretary of Purchasing Agents Association of Buffalo.



NG



You might find that you can make your money go further, and get the extra assistance of really original thinking on your problems, by doing business with Titeflex. You'll find, too, that it costs no more than routine handling. Why not fill out the coupon below today, and see for yourself? There's no obligation.



For More Information Circle No. 288 on Inquiry Card-Page 17

Bruce D. Henderson, vice president of purchases and traffic for Westinghouse Electric Corporation, has been named acting manager of the corporation's transformer division in Sharon, Pa. During Mr. Henderson's absence, Andrew M. Kennedy, Jr., has been appointed acting general manager of the purchasing department. Mr. Kennedy was formerly assistant general manager. John C. Feick, Jr., has been

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B. D. Henderson

appointed executive staff assistant to the vice president of general industrial products for the company. He was formerly purchasing agent for the corporation's air conditioning division at Staunton, Va. Mr. Karl A. Wolf has been named purchasing agent for the air conditioning division in Staunton, replacing Mr. Feick. He comes to his new post from that of staff assistant in the company's headquarters purchasing office in Pittsburgh. Dale C. Weisenstein has been named staff assistant in the headquarters purchasing office. He was formerly assistant purchasing agent at the motor and con-trol division at Buffalo, N. Y. William S. Perkins, has been named assistant purchasing agent at the motor and control division in Buffalo, N. Y. He joined the Westinghouse purchasing department in September, 1953, and has served on the headquarters staff to date. Mr. Joseph W. Baker, formerly assistant purchasing agent for the Westinghouse electronic tube division, Elmirà, N. Y., has been temporarily assigned to the headquarters purchasing office. He joined Westinghouse in Elmira in 1952. He is a member of the New York State Bar and Chemung County Bar Association.

The plant service section of the Purchasing Department, E. I. du Pont de Nemours and Co., Inc., Wilmington, Del., has been raised to division status in a move toward further decentralization of purchasing activity. The Plant Service Division will coordinate the purchasing activities and policies of plant buyers with those of the central department and will conduct a continuing evaluation of procedures. P. Lea Spruance has been named

Manager of the division. Mr. Spruance has been with du Pont since 1931, first in engineering and later in production work. He has been engaged in purchasing for the company since 1935, when he became an assistant division purchasing agent. He advanced in the purchasing department in Wilmington, becoming assistant manager of the Supplies Division last year.

Donn Innes has been named Purchasing Agent for Plant No. 2 of W. H. Nicholson & Co., Wilkes-Barre, Pa.

Joseph K. Decker has been appointed Director of Purchases for AC Spark Plug Division of General Motors Corp., Flint, Mich. Mr. Decker joined AC in 1938 as a student engineer. Successive promotions gained him experience in process engineering, tool planning, methods, and production. In 1942 he was transferred to the purchasing department, becoming assistant director of purchases by 1952.

Great Northern Oil Co., St. Paul, Minn., has appointed E. Lindsay Semple as Vice President and Manager of Crude Oil Purchasing. He will headquarter in Regina, Saskatchewan.

Pratt & Whitney Aircraft, E. Hartford, Conn., has promoted Gordon F. Leone to Assistant Purchasing Agent,

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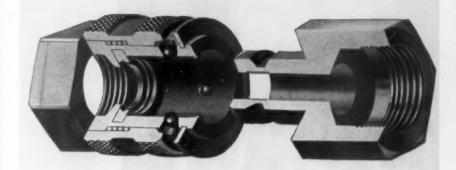


G. F. Leone

Finished Parts. Mr. Leone has been with P&WA's purchasing department since 1939, and has been employed as an expediter, buyer, and chief buyer of engine accessories.

Henry D. Ward has been appointed Director of Purchases for McLean Trucking Co., Winston-Salem, N. C. Prior to his new appointment, he had been McLean's purchasing agent. He was formerly employed by Burroughs Corporation and General Electric before joining McLean 12 years ago. He is a member of the Carolinas-Virginia Purchasing Agents Association and the Winston-Salem Purchasing Agents Association.

# ...to make a leakproof connection

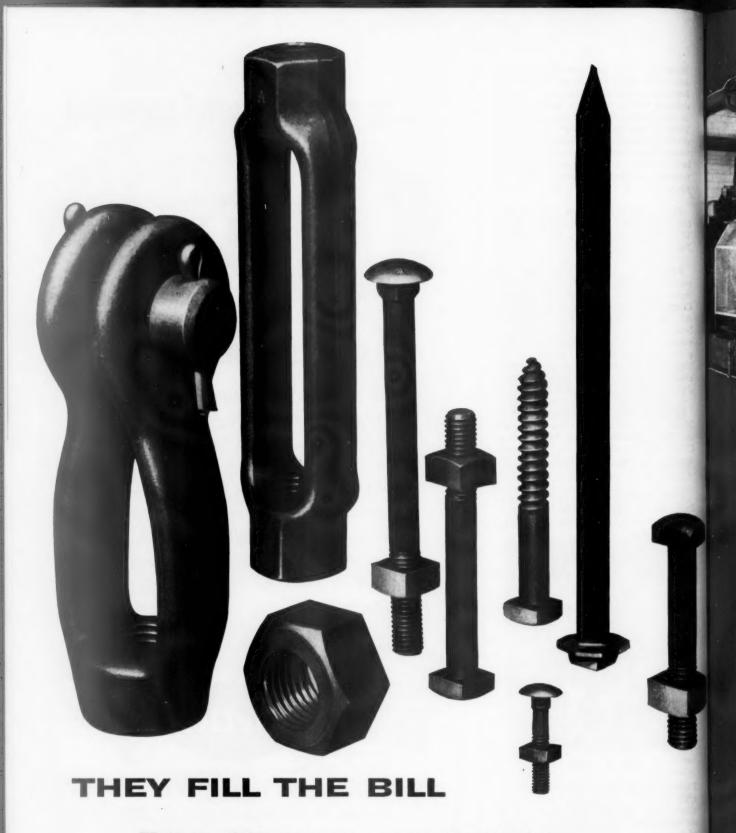


# in one second

New, economical Titeflex Quick-Seal Couplings are leakproof at all operating pressures—provide full swivel action, full free flow, versatility, long service life—couple & uncouple in one second without tools. Quick-Seal Couplings are interchangeable in the same size; come in a variety of alloys in many sizes—1/4!! to 12!! diameter. Straight-through, Single and Double Check-valve types. Write today for Titeflex Quick-Seal coupling catalog.



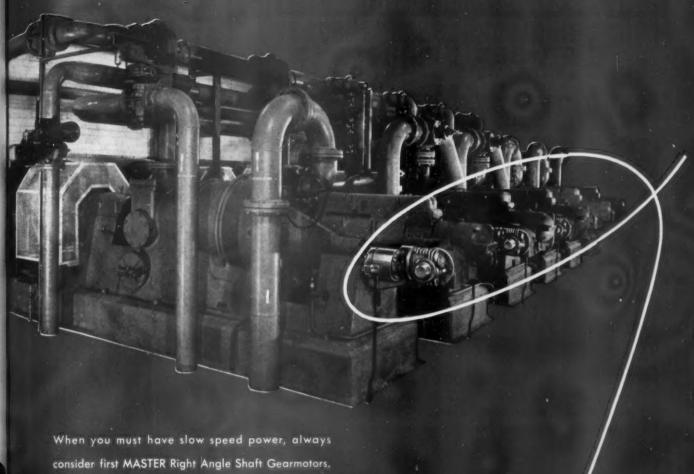
For More Information Circle No. 289 on Inquiry Card-Page 17



Whatever your bolting requirements, you can count on getting what you need when you order Bethlehem Bolts and other fasteners. They come in a full range of types and sizes. They are quality fasteners in every way, made to exacting specifications by men with years of bolt-making experience. You're sure to like Bethlehem Bolts. Try them and see!

# Bethlehem Bolts Are Good Bolts





When you must have slow speed power, always consider first MASTER Right Angle Shaft Gearmotors.

They're very compact . . . low in cost . . . safe . . . . and so easy to use.

And nowhere else can you get anywhere near the wide range of selection that you have in MASTER Right Angle Gearmotors. They're available in sizes 1/8 to 25 Horsepower for all electrical specifications and in splash-proof, enclosed or explosion-proof construction. Gear reduction ranges up to 430 to 1 with the countershaft in either horizontal or vertical positions. In addition these gearmotors can be supplied with integrally built electric brakes . . . three types of variable speed units . . . and with fluid drive units for cushioned power.

Try them . . . you'll find they're the horsesense way to get slow-speed horsepower.

THE MASTER ELECTRIC COMPANY
DAYTON 1, OHIO

you can't beat them for compact slo-speed power



# It's Good Business to Move by Mayflower



THEY CAN JUST WALK OUT THE DOOR—Free of work... free of worry! Mayflower Moving Men pack and protect everything, move it safely, lock up the old home, settle the new!



HE'S ON THE NEW JOB QUICKER—Mayflower service is so complete that your men are free for their new posts at once. No need to wait for moving day! It will pay your company to call Mayflower whenever you have moves to make.

Mayflower's organization of selected warehouse agents provides on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.

AERO MAYFLOWER TRANSIT CO., INC. . INDIANAPOLIS



For More Information Circle No. 292 on Inquiry Card-Page 17

The Inland Steel Container Co., a division of Inland Steel Co., Chicago, has announced four appointments in the Purchasing Division. L. M. Ansley is now Director of Purchases; E. W. Seefeldt has been named Purchasing Agent at the Chicago plant; J. J. Dini is the Jersey City plant Purchasing Agent; and J. M. O'Donnell takes over as Purchasing Agent at the New Orleans installation.

E

Frank E. Plumley has been named Purchasing Agent of the Winchester operation of Olin Mathieson Chemical Corp. in New Haven, Conn. Mr. Plumley succeeds Robert C. Swanton, who retired recently after 39 years of service. Mr. Plumley joins Olin Mathieson from



F. E. Plumley

his post as purchasing agent of the Bigelow-Sanford Carpet Co., Amsterdam, N. Y. He is a member of the Purchasing Agents Association of Connecticut and is, at present, serving out his term as president of the Purchasing Agents Association of Eastern New York.

Commercial Solvents Corp., New York, has named Lawrence R. Gardner as Purchasing Manager. He will be responsible for the direction of purchasing activities at all of the company's facilities. Prior to joining CSC, Mr. Gardner was purchasing agent for the Egyptian Lacquer Mfg. Co. His entire career in the chemical industry has been in the purchasing field, and has included positions with the American Marietta and Monsanto Chemical companies.

Ruth M. Slafter has been appointed Purchasing Agent for Automatic Spring Coiling Co., Chicago. She was formerly a buyer with the company.

Robert V. Sharkey has been made General Purchasing Agent for Vickers, Inc., Detroit. Mr. Sharkey has been in purchasing work since 1934 and joined Vickers as a buyer in 1941. He was made assistant purchasing agent in 1943, and purchasing agent in 1952.

# EASE OF ASSEMBLY speeds hose line replacement at R. W. CRAMER COMPANY, INC., Ballouville, Conn.



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Hose assemblies are made by PUSHING the Aeroquip hose on the SOCKETLESS fittings . . . and the fittings stay on.

The R. W. Cramer Company specializes in the manufacture of time control instruments. Aeroquip 1525 hose and SOCKETLESS fittings are used for air lines for cleaning delicate instrument assemblies.

Factory Manager C. T. Scott says, "We have standardized on Aeroquip for maintenance. The ease of assembly and the reusable fittings speed up installation of air lines."

With Aeroquip SOCKETLESS fittings and hose you can assemble fuel, oil, air and water lines fast. Use this time-saving replacement idea in your plant. Complete inventory kit available. See your distributor or write.

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AEROQUIP CORPORATION, JACKSON, MICHIGAN

LOCAL REPRESENTATIVES IN PRINCIPAL CITIES IN U.S.A. AND ABROAD . AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

For More Information Circle No. 295 on Inquiry Card-Page 17

MAY, 1955

261

# Seal: O-Matic ... for Speed and Service

IN OFFICE, STORE AND FACTORY

"Featuring "advanced-styling" in a complete line of automatic and pull type tape dispensers, "lowest in price—highest in quality"...designed with the cooperation of Stewart-Warner engineers.



Finest made for heavy duty shipping. Tape widths 1½" to 3". Features a lifetime stainless steel blade, 2 pure bristle brush wetting. Visual measuring scale. Self adjusting moistening element. Automatically measures, wets, cuts, ejects tape lengths adjustable 2½" to 36"—each pull. Side bottle maintains water level in large tank. Full encased body. Other pull type models available.



Tape widths 1½" to 3". Ten rollers make it the smoothest and easiest pulling sealer ever made. Exclusive, patented paper guides prevent tape jams. Ideal for heavy duty work. Also available, Lightning Roller Sealer, only \$8.85 retail.

UTILITY 3" BRUSH SEALER, \$7.98 retail FLASH 11/2" BRUSH SEALER, \$5.98 retail

SEAL-O-MATIC
"WALTERS 60" AUTOMATIC
Chrome Top Model
\$17.95 retail

\$17.95 retail

New ¾" to 1½" tape sealer

with front press down handle.

An unbeatable leader in style

and mechanical efficiency.

Nothing like it before!! . . .

And at m price so low. Precision formed. Rustproof. Unbreakable bodv. Lifetime

plade, automatically ejects

strips in length adjustable 2"

up to 7½". Available in hammertone grey—\$16.95 retail.

SEAL-O-MATIC
"CELLO" DISPENSER
For Cellophane or Pressure
Sensitive Tape
\$8.95 retail

Fantastically low price . . . Compare it with all competition!!

Feed stop mechanism measurés and ejects lengths adjustable up to 4" each press. Tape slitter attachment splits tape in half lengthwise, ejects two pieces—each press. Tape slitter attachment \$1.00 additional. SEAL-O-MATIC "JEWEL" For Office & Shipping Room 3" Brush Envelope & Label Moistener New Low Price \$3.98 retail

For labels, stamps, envelopes, etc. Scientifically applies just enough moisture to gummed surface for quick, permanent adhesion. A must for every office! Also available, "SURWAY" 1½" brush model, \$2.98 retail.

\*All models feature end-to-end moistening and have removable, heavy cast aluminum water boxes. In hammer-tone grey . . . some models have optional colors.



Exclusive, patented all-purpose knife. Rustproof. Unbreakable. Protective spring action safety guard eliminates the hazards of exposed cutting edges. Nothing to adjust. Always ready to cut. Appeals to all users. Priced no higher than other knives without safety features.



Opens any carton "quick as a flash"—"clean as a whistle"! Penetrates exactly under the outer flap thickness. Adjusted so that it protects contents of carton and cuts cleanly to permit re-use. Rust-proof. Unbreakable. Guaranteed to do job. Nothing else like it! Exclusive, Patented, endorsed by all users.

Send Order Now . . . or write for literature and complete details to:

MANUFACTURING CO., Dept. P.

52. W. Houston Street . New York 12, New York

World's Largest Manufacturers of Low Priced Quality Automatic Tape Dispensers

For More Information Circle No. 296 on Inquiry Card-Page 17

Richard P. Smith has been made Purchasing Agent for the new Kearny, N. J., plant of the Inorganic Chemicals Division, Monsanto Chemical Co., St. Louis, Mo. Mr. Smith replaces Edward L. Otto, who has been transferred to St. Louis to work on procurement and expediting matters for the Inorganic Chemicals Division engineering department. Mr. Smith has been with Monsanto since 1936, when he joined the firm as a buyer. He was made a buyer in the purchasing department of the former Merrimac Division in Everett, Mass., in 1946, and moved to his most recent post as assistant business manager of Mound Laboratory at Miamisburg, Ohio, in 1948.

Joseph D. Delaney has been named Plant Purchasing Agent for Trailmobile, Inc., Cincinnati. He had been a buyer in the plant's purchasing de-



J. D. Delaney

partment. Mr. Delaney joined Trailmobile in 1953, as a buyer, after serving as assistant purchasing agent for Kirk & Blum Mfg. Co.

Irvin E. Walton, Purchasing Agent. has been named Vice President in Charge of Purchases and Traffic for Heppenstall Co., Pittsburgh, manufacturer of steel forgings. Mr. Walton started with the company in 1917. From his first job as a heater's helper, he was promoted to inspector, assistant foreman of the forge shop, salesman, production clerk, and assistant sales manager. He was named purchasing agent in 1929. He is a member of the Purchasing Agents Association of Pittsburgh.

G. B. Chatterton, formerly Auditor of Purchases, Howard Smith Paper Mills Limited, Cornwall, Ontario, and Purchasing Agent of the firm's Cornwall Division, died recently. As a result, Mr. A. L. Pomeroy, formerly Assiant Purchasing Agent, Cornwall Division, is now Supervisor, Purchasing Department. Mr. D. Ross-Ross has been named Acting Auditor of Purchases for all Howard Smith mills.

3

For Better Contour Cutting...



gives you more cuts, longer life, lower costs!

Here's a tough, edge-holding metal cutting band saw blade that gives you a real bonus in smooth, fast cutting and long life.

Made of extra tough, wear-resistant alloy steel, Simonds "Bonus" Bands have sharp, perfectly formed teeth — set with absolute evenness on both sides of the blade. Hardened along the tooth edge only by controlled heat treatment, they combine maximum cut-ability with flexibility and resistance

to breakage, provide the ultimate in trouble-free service.

All standard widths and tooth spacings are furnished in 100' and 250' coils or welded to specified length. Ask your local Simonds Industrial Supply Distributor for more information on the complete line of Simonds "Bonus" Band Saws.



Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon Canadian Factory in Montreal, Que. Simonds Divisions: Simonds Steel Mill, Lockport, N. Y. Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

For Fast Service from SIMONDS Industrial Supply DISTRIBUTOR

For More Information Circle No 299 on Inquiry Card-Page 17

MAY, 1955

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Photo courtesy Martin Aircraft

Martin Jet Bomber B-57B—package of engineering ingenuity wields new speed and mobility in this

## \* Modern Arm of the Air Force \*

Wrapped up in this modern arm of the skyways is the wizardry of Martin engineers—masterminds who gave this fighting bomber a supremacy of visibility, mobility, speed and control.

In the success of this fighting craft, Continental takes modest pride in being selected to engineer and supply many of the molded and extruded rubber parts. A typical example is the cockpit seal which must not craze plexiglass and yet must remain flexible even at  $-70^{\circ}$ !

Compounding and extruding rubber that will not craze plexiglass is a problem in itself. Producing rubber to remain flexible at  $-70^{\circ}$  is still another. Furthermore, this part must have an exceptionally low compression set in order to retain its perfect seal. Resistance to every weather condition is also a must.

Producing a rubber part to meet all these critical specifica-

tions was a real challenge! Proper plasticizers had to be chosen, extensive laboratory tests conducted, and special handling was necessary to maintain the extremely close tolerances required. A challenge that Continental met and exceeded because of their 50 years' skill and experience in the specialized art of molding and extruding rubber.

The technical assistance offered for this part typifies the service available at Continental. When you need "engineered rubber parts," enlist the service of specialists—consult Continental.

#### Engineering catalog.

In addition to custom-made parts, Continental offers an extensive line of standard grommets, bushings, bumpers, rings and extruded shapes. Hundreds of these are shown in the No. 100 Engineering Catalog. Send for a copy or refer to it in Sweet's Catalog for Product Designers.

Another achievement in RUBBER

(B) engineered by CONTINENTAL

CONTINENTAL RUBBER WORKS . 1983 LIBERTY ST. . ERIE 6 . PENNSYLVANIA

Merritt-Chapman & Scott Corp., New York, has elected Rolland O. Baum as Executive Vice President in Charge of Procurement, Trade Relations and In-



R. O. Baun

surance. He joined the company in July, 1949, as procurement manager and was elected a vice president in charge of procurement, insurance and subcontracts, in 1952.

Everett I. Morse, central paper buyer for Bemis Bros. Bag Co. in Boston, has been named Director of Paper Procurement, a new title created in recognition of the increased importance and scope of paper procurement in Bemis operations. Mr. Morse has been with Bemis since 1925, when he joined



E. I. Morse

the Boston office to work in marine claims, insurance, and foreign finance in connection with the company's textile imports. He gradually transferred his interests to paper, starting in 1937, and was put in charge of the Paper Procurement Department when centralized paper purchasing was established in 1950.

After 35 years of service, B. E. Vergowe, Purchasing Agent of Aetna Ball & Roller Bearing Co., division of Parkersburg-Aetna Corp., Chicago, has retired and was succeeded by Guy M. Karm, his assistant since 1951. Mr. Karm, the new Purchasing Agent, has been with the firm since 1947.

For More Information Circle No. 301 on Inquiry Card—Page 17→



# INDUSTRIAL Developments



Plans for the construction, in Lynchburg, Va., of what is believed to be the first privately financed major plant for the manufacture of fuel elements and other reactor core components for the nuclear power industry, have been announced by the Atomic Energy Division, Babcock & Wilcox Co., New York.

The Schneider Mfg. Corp., Muncie, Ind., a wholly-owned subsidiary of the Westinghouse Electric Corp., Pittsburgh, has been dissolved to form the Hydraulic Drives Department of the Westinghouse Gearing Division. The department will sell, engineer, and

manufacture hydraulic torque converters and associated brakes and transmissions. Headquarters of the department will remain in Muncie.

Production of welded aluminum construction pipe by the Aluminum Co. of America, Pittsburgh, has been made possible by the installation of two new welded tube mills at the company's Alcoa, Tenn., works. The operation of the welded tube mills is continuous and begins as a coil of aluminum strip is fed into levelling rollers which flatten it before it is formed and welded.

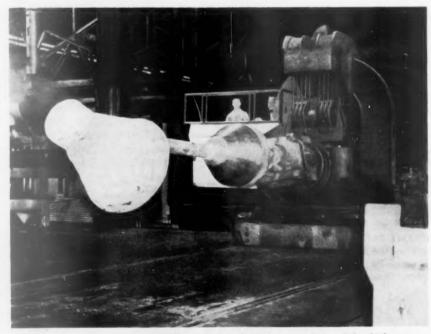
Chrysler Corp., Detroit, has launched the largest expansion of its engineering facilities in the company's history. The multi-million dollar construction program, to be completed by March of 1956, will increase working space at Chrysler's Highland Park engineering center by nearly one-third. Major construction items include a new threestory building of 182,112 sq. ft. for body styling and design; an addition to the present three-story body design building, upping total floor area to 63,540 sq.ft.; and a major addition to the dynamometer laboratories.

To meet the growing consumer demands for its products, The Goodyear Tire & Rubber Co., Akron, is building a modern tire plant in Venezuela. This 17th foreign plant, is located in Valencia.

An improvement program totaling several million dollars for the Wick-wire Spencer Division plant in Buffalo of the Colorado Fuel and Iron Corp., New York, has been announced. Under the program, Buffalo's open hearth furnaces will be made larger and more efficient, the wire mill will be increased in capacity and new rolling mill machinery will go into the rod mill.

Joseph T. Ryerson & Son, Inc., a wholly-owned subsidiary of Inland Steel Co., Chicago, has acquired the plant and stocks of Arthur C. Harvey Co., Boston, steel and aluminum distributor. Ryerson plans to consolidate its Greater Boston operations at the Harvey plant.

Aeroquip Corp., Jackson, Mich., has announced the purchase of Marman Products, Inc., Los Angeles, manufacturers of pipe clamps, flex joints and valves.



Recent production of several 7000-pound forged steel cones, designed for high pressure vessels, presented the National Supply Co., Pittsburgh, with a difficult handling problem. A special mandrel, cone shaped on the inner end, was designed and built for use in handling the forging on the manipulator.



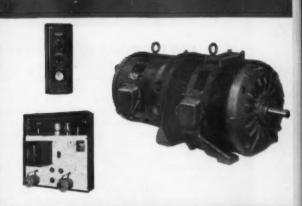
# Get the right answer from

It pays to think first of the Louis Allis Co. whenever you're considering adjustable speed drives for your product or plant. Louis Allis builds all basic types. There's no compromising — from this complete line you can select the unit that's exactly suited to your job conditions and engineered for your application.

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AJUSTO-EPEDE. 1/2 to 75 nonepower, A paragile eddy current clutch combined with a constant speed AC squirrel cage motor provides wide, confinuous dul speed ranges. Tachomeler teadback circuit affects process speed regulation in an unusually compact drive. Many optional features symbols — dynamic braking, torque control, threading speeds, inching, jogging, multi-motor operation and range drives.

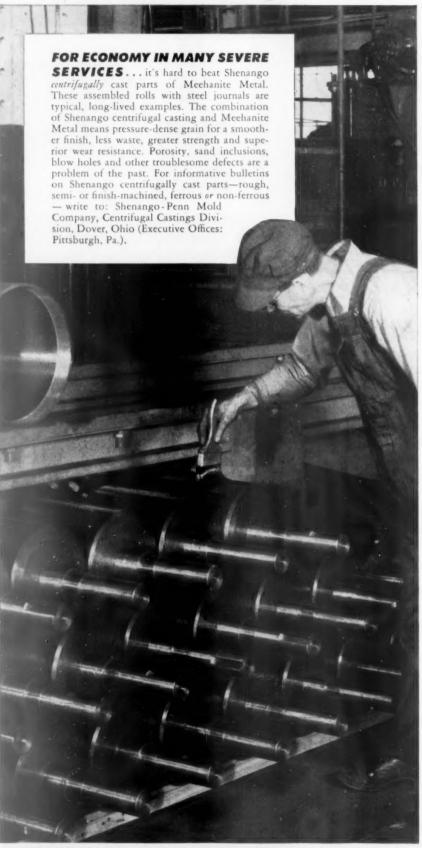


SELECT-A-SPECE, 3 to 100 here power, they magnetic amplifier and adjustable vottego control provide superior speed regulation — better than required an most machines — from 1%, bere speed or less to full base speed, Allelettic circuits — easily serviced, A.C. source, converted to D.C. by motor-general C. et, drives adjustable speed D.C. motor-Many special control features available — reversing, dynamic braking, largeing speeds programming or sequencing control extra wide speed range.

All priva major encourse commutable.



haws placticable speed drive more operates from A.C. electronic power unit. Infinitely adjustable speed ranges 5-1, 20-1, 50-1, 100-1 available, Unusually close speed regulation to 3.25 with optional tochometer tendback circuit, included as standard area dynamic broking, torque limit, line vallage compensation. A few available, modifications includes reversing, logging, threading, and quick slow-down. All mater enclosures and control stations — from open to explosion-proof.



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COPPER, TIN, LEAD, ZINC BRONZES + MONEL METAL ALUMINUM AND MANGANESE BRONZES + NI-RESIST + MEEHANITE® METAL

For More Information Circle No. 304 on Inquiry Card-Page 17

To implement its Machine Tool Division's capacity to produce the new single spindle screw machine, the Gear Grinding Machine Co., Detroit, has built an addition to its plant. The 33% increase in floor space will provide adequate room for the production of both screw machines and gear grinding machines.

The purchase of the complete line of Rockwell (Delta-Milwaukee) hydraulic drill units from Rockwell Mfg. Co., Pittsburgh, by The Hartford Special Machinery Co., Hartford, Conn., has been announced by both companies.

Nearly \$1 million is being spent by The Wayne Pump Co., Salisbury, Md., to expand its plant. The new building and new equipment will be ready about November of this year.

Plans to more than double the capacity of Canada's big aluminum smelter at Kitimat, B. C., to meet the increasing U.S. and world demands, have been announced by Aluminum Limited, Montreal. Presently the installed capacity of Kitimat is 91,500 tons; under construction is 60,000 tons which was authorized last October; and the new program will add another 180,000 tons. Accordingly, the total new construction underway or scheduled is 240,000 tons. By the end of 1956, 90,-000 tons of this will be in operation, bringing the total installed capacity up to 181,500 tons. The balance will come into operation in stages to be completed in 1959. The cost of the new program is estimated at \$190,000,000.

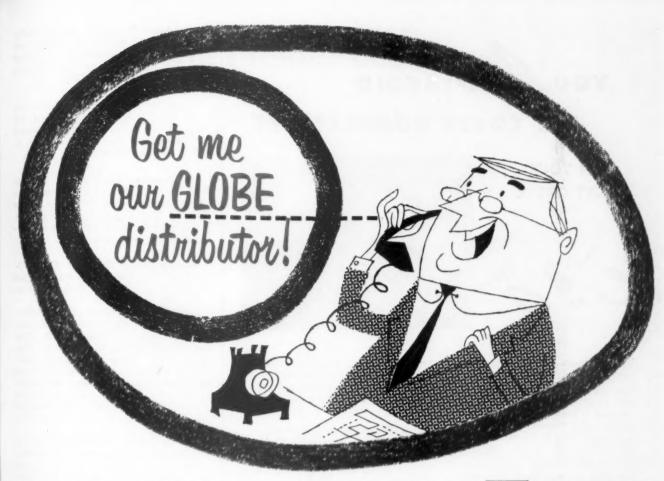
Super Tool Co., Detroit, has opened a new plant at Elk Rapids, Mich. Construction of the additional 20,000 sq. ft. facility expands the 27-year old company's production line of standard carbide drill, reamers, milling cutters, saws, lathe tools and other metal cutting tools.

The Samuel M. Langston Co., manufacturer of machinery for the corrugated container industry and paper mills, has moved its executive offices into a new \$250,000 addition to its Camden, N. J., factory.

Atlantic Steel Co., Atlanta, Ga., is embarking on a \$10,000,000 modernization and improvement program. Prime targets of the program are; construction of a new merchant bar and rod mill at an estimated cost of \$8,735,000; a second electric furnace at a cost of \$750,000; and construction of new administration offices at a cost of \$450,000.

Construction is well underway on the \$300,000 engineering building of The Cleveland Crane & Engineering Co., Wickliffe, Ohio. When completed, it will hold 80 engineers and draftsmen engaged in designing Cleveland overhead travelling cranes, tramrail overhead materials handling equipment, etc.

MA



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Your Globe Welding Fittings Distributor is geared to help you solve your alloy "purchase problems". He's able to anticipate your emergency needs and, therefore, stocks a wide range of sizes and types of Globe fittings to meet these emergencies.

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For More Information Circle No. 307 on Inquiry Card-Page 17

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# YOU (AW AVOID DIE COSTS COMPLETELY!

ON YOUR **NEXT ORDER** 





Yes, you can - but it's not necessarily the best thing for you.

You want the lowest unit cost for the life of the part, including re-runs. It may well be that our Machine-Cut Method, with no die cost, does work out best.

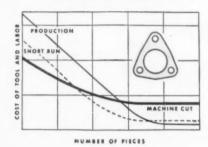
Or, it might better be our Short Run Method, using economical blanking dies and stock punches. Sometimes, even with very short runs, it pays to use our Production Method with a standard die or our own surprisingly inexpensive Hecht-type tool.

In any case, the decision is a technical one based on many factors, not just length of run. You save money when the correct decision

#### WE USE ALL THREE METHODS - LET US MAKE AN IMPARTIAL DECISION FOR YOU

For example, take the part illustrated. From 1-65 parts, our Machine-Cut Method is most economical. At 65 parts, the Short-Run Method is best until, at 7,000 units, the standard Production Method is most satisfactory.

These breaking points as charted vary drastically with every stamping, but the general principle remains the same.





## STAMPINGS DIVISION

"ONE PIECE OR ONE MILLION"

Manufacturers of ALL TYPES OF SHIMS

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Please rush me my free copy of "SERVICE IN STAMPINGS"—the 12-page illustrated booklet full of helpful facts on the economical buying of stampings

STREET

CITY\_ ZONE STATE\_

For More Information Circle No. 308 on Inquiry Card-Page 17

Studebaker Hydraulic Products Co, has purchased partial inventory and other assets of Studebaker Machine Co. The new company will continue to operate in Maywood, Ill.

A giant third in the can industry came into being, recently, when the National Can Corp., Chicago, purchased the Pacific Can Co., San Francisco, in a \$19 million transaction.

The Sangamo Electric Co., Springfield, Ill., through a wholly owned sub-sidiary, has acquired the assets of the Gothard Mfg. Co., also of Springfield. It will operate under the name of Sangamo Generators, Inc.

Western Metal Specialty Co., Milwaukee, has purchased the Crippen Machine and Tool Co., Jackson, Mich.

Beckman Instruments, Inc., Fullerton, Calif., has completed the acquisition of Specialized Instruments Corp. and Spinco Service Co., both of Belmont, Calif. These companies, which will be known as the Spinco Division, manufacture a unique line of instruments for advanced research in the chemical, biophysical and medical

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The signing of a manufacturing licensing agreement with the Hughes Aircraft Co., Culver City, Calif., has been announced by Airtron, Inc., Linden, N. J. Under the agreement, Airtron will manufacture microwave ferrite elements and ferrite-containing microwave devices such as ferrite attenuators, isolators, and modulators.

Topp Industries, Inc., Los Angeles, has purchased the assets and acquired the services of key technical personnel for the full line of potentiometers of Standard Electronic Mfg. Co., Culver City, Calif.

Pittsburgh Gear Co., a subsidiary of Brad Foote Gear Works, Inc., Chicago, has completed the installation of \$150,-000 worth of new heat treating facilities which enable the company to deep case harden, by the gas carburizing method, gears as large as 72" in diameter with a face width of 30" and a maximum load of 8500 lbs. The installation also consists of a quench tank to compensate for these diameters, with a double propelled agitator for direct quench.

The formation of a new corporation to take over the manufacture and marketing of Black Leaf brand agricultural chemicals and pest control products has been announced by Virginia-Carolina Chemical Corp., Richmond, and Diamond Alkali Co., Cleveland.
Major interest in the new firm, to be
known as Diamond Black Leaf Co., will be held by Diamond Alkali. It will also be managed by Diamond, with Virginia-Carolina holding a minority interest.

World's tallest pile driver...
World's toughest test rig...
for



Elastic Stop® nuts

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Each hammer-stroke of this 270-foot pile driver delivers a 24-foot-ton wallop! It was built by Raymond Concrete Pile Company to drive 200-foot pipe piles for the foundation of units being added to the B. C. Cobb Steam Plant of Consumers Power Company, at Muskegon, Mich.

Raymond makes a practice of using Elastic Stop® nuts for bolting together sections of leads and booms on all their pile-driving equipment. The red elastic locking collar of these vibration-proof fasteners has successfully maintained its grip under these severest of all vibration and impact conditions!

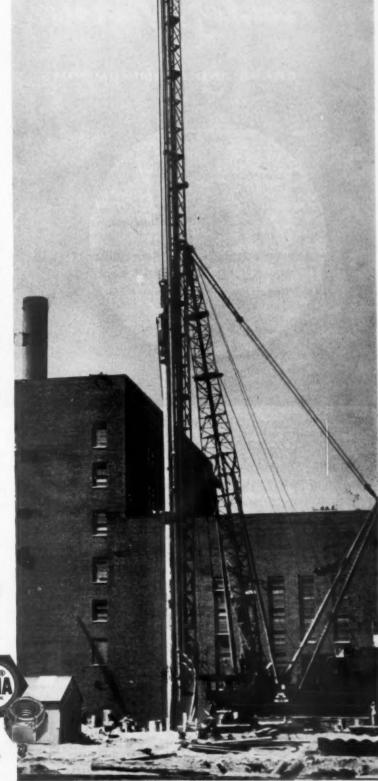
Whether used on aircraft or locomotives; guided missiles or steam shovels . . . more than twenty years of field testing on applications where safety and severe operating conditions demand a fastener that will not shake loose, prove that . . . you can rely on Elastic Stop nuts.

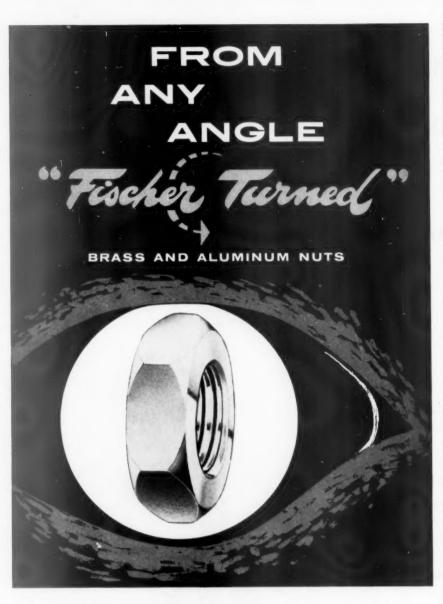
# ELASTIC STOP NUT CORPORATION OF AMERICA

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The red locking insert in an Elastic Stop nut guarantees

- · reusability
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Price, quality, delivery, technical assistance . . . any way you look at it . . . you can count on complete satisfaction if you specify "Fischer Turned" brass and aluminum nuts.

Standard or "specials", Fischer turned nuts cost no more than those produced by other, less accurate methods, yet each is burrless...tapped square with the face to Class 2 tolerances...

cleaned and degreased . . . countersunk on both sides.

Write today for complete catalog.



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SPECIAL MFG. CO.

CINCINNATI 6, OHIO

For More Information Circle No. 302 on Inquiry Card-Page 17

The Hycor Companies of California and Puerto Rico have been acquired by the International Resistance Co., Philadelphia. Hycor manufactures magnetic and audio devices and precision resistors.

To provide a long-range supply of acid grade fluorspar for its Calvert City, Ky., fluorine chemicals plant, the Pennsylvania Salt Mfg. Co., Philadelphia, has announced the incorporation of a new, wholly-owned subsidiary and plans for the development of mining and milling operations at nearby Salem and Mexico locations. The new enterprise will be known as the Calvert City Chemical Company and is expected to be in production by the end of the year.

A new Plymouth engine plant with capacity for building V-8 engines for Plymouth cars at three times the current volume will be in operation in Detroit by the late fall of this year, according to Chrysler Corp., Detroit.

Pittsburgh Plate Glass Co., Pittsburgh, has purchased the Barreled Sunlight Paint Co., Providence.

The E. A. Bessom Corp., Salem, Mass., has been purchased by North & Judd Mfg. Co., New Britain, Conn.

The Timken Roller Bearing Co, Canton, is building a rock bit producing facility at its St. Thomas, Ontario, plant. The production of the carbon insert rock bits, in sizes up to 3" in diameter, is scheduled to get underway around September. The new building will contain some 5600 sq. ft. of floor space and cost about \$250,000.

Westinghouse Electric Corp., Pittsburgh, is building a combined manufacturing, engineering, and office building for production of military electronic equipment near the Friendship Airport, Baltimore, Md. Plans call for full occupancy and full operation by January, 1956.

Erection of the world's largest slabreheating furnaces is finished at the Weirton Steel Company, Weirton, W. Va. The three new furnaces, built by Surface Combustion Corp., Toledo, have a normal capacity to reheat 200 tons of steel slabs to rolling temperature per hour. They are about 118 ft. long and wide enough to heat slabs that are 26 ft. long.

International Resistance Co., Philadelphia, has announced that its whollyowned Florida subsidiary, formerly Van Dyke Instruments, Inc., St. Peterburg, is now known as Circuit Instruments, Inc.

The Kennedy Car Liner & Bag Co. Inc., Shelbyville, Ind., has purchased the Justice-Doyle Co., Jefferson, Ind. This firm has been manufacturing polyethylene bags and specialty items.

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PURCHASING

# You can cut costs...improve design...simplify purchasing

# with C-D-F DIAMOND® VULCANIZED FIBRE

If your job is to select a general-purpose insulating material that is low cost, useful for both electrical and mechanical applications, easy to machine and form, consider the advantages of a unique old-timer — C-D-F's Diamond Vulcanized Fibre. C-D-F first made fibre in 1895, back in the early days of the electrical industry, and is today one of the world's largest producers and developers of this versatile material.

#### **OUTSTANDING MECHANICAL QUALITIES**

Think what Diamond Fibre can do. Its weight is half that of aluminum, yet it is one of the strongest materials known per unit weight. Tensile strength is 10,000 to 15,000 pounds per square inch. Shearing strength is about 10,000 pounds. Almost as strong as iron, on a weight:strength ratio basis. Diamond Fibre is tough and will not readily crack or shatter under heavy impacts. Its surface is hard and smooth. In forming, fibre can be moistened and dried repeatedly without having its structure, or quality significantly altered. C-D-F makes a special forming fibre, using longer cotton cellulosic fibers for added strength.

#### ALSO GOOD ELECTRICALLY

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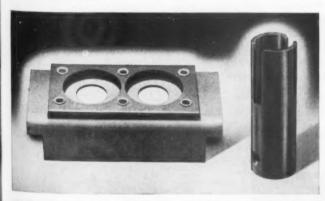
tems.

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Although given a modest insulation rating for resistance to heat (A.I.E.E. Class A with a temperature limit of 221°F.), Diamond Fibre is often used because of its excellent arc resistance and good dielectric strength. It also has desirable deionizing properties and low heat conductivity. Fibre can be combined or surrounded with moisture-resistant laminated plastic. C-D-F does this in volume for manufacturers of low voltage cartridge fuses and high tension expulsion fuses. Inside is a fibre tube with excellent arc extinguishing properties and high internal bursting strength. Outside is a weather- and moisture-proof shield of rolled phenolic Dilecto.

#### MANY GRADES AND FORMS

Diamond Fibre sheet and roll grades include Bone, Commercial, and Electrical Insulation (fish paper) NEMA grades. Fibre tubing is normally made only in Bone grade, with rods available in both Bone and Commercial grades. The chart shown outlines the major characteristics of these grades. Special grades include fibre specifically adapted for these mechanical purposes: abrasive, bobbin, flexible, forming, pattern, shuttle, sanitary goods, trunk and case. Built-up sheets can be supplied that are lower in cost than standardard thick sheets.



GOOD EXAMPLES of Diamond Fibre formed and machined by C-D-F. Left—An insulating barrier made from three pieces of fibre, punched and formed. Fibre tubing is even used for rivets. Right—A fibre tube which has been smooth-sawed to length, punched twice and countersunk. C-D-F can handle the entire job for you, do it faster and at low cost. This includes selecting and testing the proper grade of fibre, machining and inspection, assembling if needed.

C-D-F BONE FIBRE	Hard, stiffest grade. High density. Resists wear, abrasion, has high compressive strength. Good dielectric strength when dry. Super machining qualities. Not recommended for bending.			
C-D-F COMMERCIAL FIBRE	Mechanical and electrical grade. Medium density, Tough, pliable. Good mechanical properties. Fair dielectric strength, normally high when dry, Can be bent, punched, and formed.			
C-D-F DIAMOND INSULATION	Electrical insulation "fish paper" grade. Unusually free from foreign matter. Withstands extreme bending and forming without cracking high dielectric strength except under high humidity.			

#### WHAT IS FIBRE?

Vulcanized fibre is made by combining layers of chemically jelled paper. The chemical compound used in gelling the paper is subsequently removed by leaching and the resulting product, after being dried and finished by calendering, is a dense material of partially regenerated cellulose in which the fibrous structure is retained in varying degrees, depending upon the grade of fibre.

-NEMA Standard VU 1-1.1

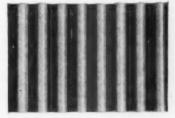
#### **VULCOID—A RESIN-IMPREGNATED FIBRE**

One of C-D-F's products is a great material called Vulcoid. Vulcanized Fibre is its base, but a special combination of C-D-F resins give Vulcoid a moisture resistance intermediate between vulcanized fibre and that of higher-cost laminated thermosetting plastic. One company uses Vulcoid for electric light switch parts where it cuts their costs and improves their products. Another big outfit uses Vulcoid in place of fibre for its improved electrical properties and good formability. If you have never tested or heard of this C-D-F exclusive, write for details and samples.

#### MANY LESSONS IN FIBRE KNOW-HOW

At C-D-F there are bins holding thousands of sample Diamond Fibre parts — for electrical, textile, materials-handling, and machinery applications. They represent years of experience in designing and machining fibre to meet exacting needs. Also, they

stand for C-D-F's ability to help you solve your specific materials selection problem. Get the facts about C-D-F and Diamond Fibre. Call your nearest C-D-F sales engineer (offices in principal cities), or look in Sweet's Product Design File. Write for samples and the new 1955 Diamond Fibre catalog with complete mechanical and electrical properties, size charts. Enclose your print for quotation-C-D-F is a big, reliable source of supply!

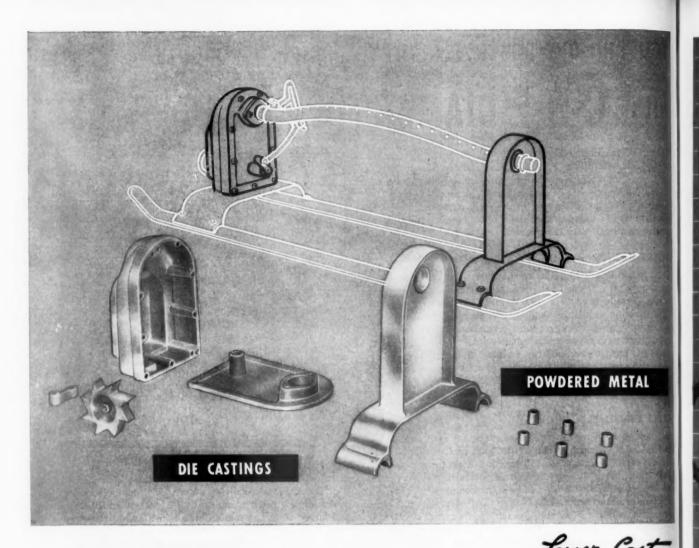


C-D-F CORRUGATED FIBRE is used by manufacturers of distribution transformers for load and oil ducts. The corrugations do not flatten out after baking or in oil at temperatures normal to such units. Also, it is more economical than laminated molded thermoplastic and can be cut to size, with a big saving in time and materials.

WRITE FOR NEW DIAMOND FIBRE CATALOG!

Continental-Diamond Fibre Company Newark 41, Delaware

For More Information Circle No. 312 on Inquiry Card-Page 17



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#### PARKER SALES ENGINEERS

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Low cost-consistent with high quality—was the primary objective in producing important component parts for the popular lawn sprinkler made by Eastern Machine Products Inc. Parker gained this objective by making the end bracket, actuator housing, crank, and water wheel of aluminum die castings. The bushings inside the housing are bronze alloy sintered metal. The end result: component parts that meet every specification at lower cost.

This example emphasizes an important point about Parker service. No matter what your requirements in either die castings or powdered metal, Parker has the skill, experience and facilities to provide either or both. This undivided responsibility has saved money—and solved problems for many users. Your problem may be one that Parker can solve in like manner. Just call the nearest Parker sales engineer listed at the left.

Parker White Metal Company • 2153 McKinley Ave., Erie, Pa.

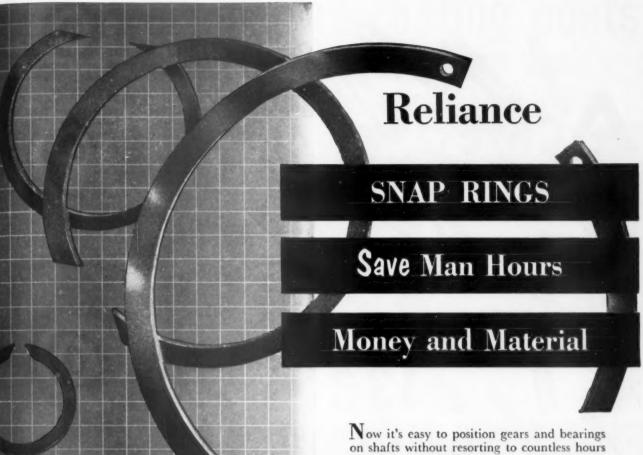


ALUMINUM and ZINC die castings

For More Information Circle No. 313 on Inquiry Card-Page 17

PURCHASING

MAY,



on shafts without resorting to countless hours of intricate and expensive machining operations. Nor do you sacrifice quality when you let Reliance Snap Rings do the same job on shaft assemblies, bearing applications and counterbores that formerly required many man hours and wasted materials.

Reliance Snap Rings form a solid shoulder able to withstand predetermined thrust loads simply by machining a groove into a shaft and snapping in a Reliance Ring. Compare this to the waste in time and materials of machining the entire length of the shaft to form a shoulder. Wherever it is practical from a design standpoint, Reliance engineers can show you how to save man hours, money and material by switching from expensive



machining operations to Reliance Snap Rings. You will find more detailed information in our Engineering Folder 4K/3 which we will be happy to send at your request with no obligation.

3. Snap Reliance Ring in groove

1. Drill hole full length

LANTS: 513 Charles Ave. MASSILLON, OHIO



MANUFACTURING COMPANY





Cleveland . Detroit . Chicago . St. Louis . San Francisco . Montreal FAS NER ARE REGISTERED TRADEMARKS OF THE EATON MANUFACTURING COMPANY

For More Information Circle No. 314 on Inquiry Card-Page 17

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Sizes range from 3/8" to 6" in length—1/8" to 1" in diameter. Precision pins are hardened and ground to .0002" or .001" over nominal diameter—oversized from .002" to .005".

Acme Pins are case hardened to 60-62 Rockwell "C" scale and core hardened to 36-38. These pins will break before bending or mushrooming—preventing misalignment or breaking of doweled parts. A special lubricant is used on pins to prevent scoring when being driven in and out of holes.

Order from your distributor—or write for Acme Dowel Pin folder and name of distributor nearest you.



# ACME INDUSTRIAL COMPANY

211 N. LAFLIN STREET, CHICAGO 7, ILLINOIS
Manufacturers of standard dowel pins • Chamfer micrometer gages • Drill jig
bushings • Portable bench centers • Roughness comparison specimens • Hardened
and ground parts manufactured to order

For More Information Circle No. 315 on Inquiry Card-Page 17

#### **NEWS OF YOUR SUPPLIERS**

Douglas C. Lynch, formerly executive vice president of **Brush Electronics Co.**, **Cleveland**, has been named president of the company.

Edgar B. Shepard has been named manager of tractor sales for the Construction Equipment Division of Metalweld, Inc., Philadelphia.

The MW Construction Equipment Division of Metalweld, Inc., has been made an exclusive distributor for the International Harvester Co., Chicago. Metalweld will cover eastern Pennsylvania, southern New Jersey and northern Delaware.

Niles-Bement-Pond Co., West Hartford, Conn., has appointed John C. Molinar as vice president of the com-



J. C. Molinar

pany and general sales manager. He will be responsible for the sales activities of the company, both foreign and domestic.

Chase Bag Co., Chicago, has appointed John F. Casey as a special sales representative for Impervitex Roofing Membrane.

Axelson Mfg. Co., division of U. S. Industries, Inc., Los Angeles, has named Arthur F. White as Detroit district manager. He will be in charge of direct factory sales for the Axelson Lathe and Milling Machine divisions.

Shell Chemical Corporation's Agricultural Chemicals Division is moving its headquarters to New York City from Denver, Colo.

Edward H. Walthers has been named sales manager, Distributor Sales Division of Crown Zellerbach Corp., San Francisco.

Edgcomb Steel of New England, Inc., Milford, Conn., has elected Edgar R. O'Brien to the newly created post of vice president and general manager.

# Cut wire fence re-coating costs!

Users Report Savings of 30% to 40% With Rust-Oleum Extra-Long Nap Lamb's Wool Roller!



Special roller glides easily over wire sections. (Rusted sections have already been primed with Rust-Oleum 769 Damp-Proof Red Primer to Stop Rust.) Finish coat is Rust-Oleum 470 R.M. Aluminum.



A new, exclusive, different-type roller! Greater diameter, specially selected skins, extra-long Lamb's Wool – all combine to give you more coverage faster and easier in the new Rust-Oleum Roller-Coating System.



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IASING

Close-up shows how Extra-Long Nap Wool reaches around to coat approximately 70% of other side of fence at same time. Rust-Oleum's exclusive penetrating qualities saturate cross wire sections for desired mil thickness.



Man follows with "dry" roller on opposite side of fence to catch and use surplus "tears" and quickly coat remaining 30% of wire sections.



Even barbed wire sections can be roller-coated in one easy pass. 99% of the material is used on the fence – not on the workers, not on the ground.



On long distances of fencing, a 5 man production "team" can achieve even greater savings. The first man wirebrushes the surface to remove dirt, dust, rust scale, etc. The second man applies Rust-Oleum liberally by roller, coating the wire sections and barbed wire. The third man follows on the opposite side of the fence with a "dry" roller to catch and use the surplus. The fourth and fifth men work on opposite sides of the fence, brushing the pipe framework and the barbed wire arms. See how this new Rust-Oleum system can save you money. Attach coupon to your letterhead, mail today. See local classified telephone directory under Rust Preventives or Paints for nearest source of supply.



#### ATTACH TO YOUR LETTERHEAD - MAIL TODAY!

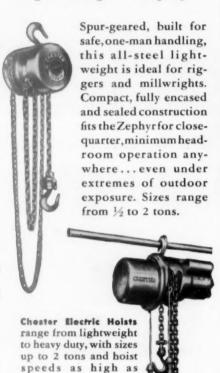
#### RUST-OLEUM CORPORATION 2434 Oakton Street, Evanston, Illinois

For More Information Circle No. 318 on Inquiry Card-Page 17

MAY, 1955

# CHESTER HOISTS get work done fast

# NEW...Versatile Lightweight Zephyr



Heavy, spur-geared, hand chain Chester Hoists are available in sizes up to 25-ton capacity, all containing precision Timken bearings.

Special hoists—Army types, extended handwheel, low headroom trolley hoists and low cost Chester Differential Hoists are also available.

Contact your distributor or write for specification literature on the type of hoist that interests you.

#### CHESTER HOIST DIVISION



30 f.p.m.

The National Screw & Mfg. Co. LISBON, OHIO

For More Information Circle No. 319 on Inquiry Card—Page 17 McKee Tool & Supply Co., Lima, Ohio, has been appointed an authorized Carboloy carbide tool distributor by the Carboloy Department of General Electric Co., Detroit.

Five changes in the industrial chemical sales organization of Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., New York, have been announced. R. C. Boltz is now district sales manager of the Newark district. He had been district sales manager in Buffalo. G. E. Kuehn, formerly assistant district sales manager of New York, takes over as district sales manager in Buffalo. In addition, the following technical representatives have been transferred: G. S. Cooper, from New York to Pittsburgh; J. W. Locher, from Indianapolis to Pittsburgh; and B. W. Hurley, from Cincinnati to Indianapolis.

James W Fullerton and Robert A. Hopkins have been appointed field engineers for the Republic Rubber Division, Lee Rubber and Tire Corp.,





J. W. Fullerton

R. A. Hopkins

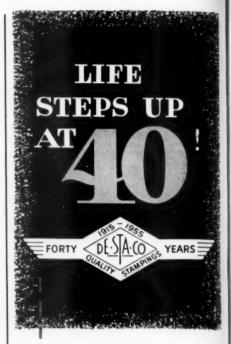
Youngstown, Ohio. Mr. Fullerton will headquarter in St. Louis, serving industries in that area. Mr. Hopkins will handle Kansas City, Mo., and its area.

Expansion of its regional organization has been announced by Cummins Engine Co., Inc., Columbus, Ind., with the opening of its Piedmont Regional Office in Greensboro, N. C. In charge of the region, which consists of Virginia, West Virginia, and North and South Carolina, is R. R. MacDonald.

Republic Steel Corp., Cleveland, has announced changes in the manageagement of its Culvert Division in Canton, Ohio. Lewis D. Cisler is now manager of sales, and C. W. Pfeiffer is assistant manager of sales. Meril L. Eckman continues in charge of operations under the title of division manager. Homer A. Wilson has been named assistant division manager.

The appointment of Perry Kilsby, Inc., Los Angeles as a distributor of aluminum pipe and tubing has been announced by Reynolds Metals Co., Louisville, Ky.

Douglas Wallace has been elected a vice president of the Graybar Electric Co., New York. Mr. Wallace has been with Graybar since 1922, when he joined the organization as an assistant accountant in Seattle.



Sure we've been making stampings for 40 years!
... But we're going up the hill faster than ever!

Expanded facilities! . . .
Newer equipment! . . .
Wider diversification!
. . . Even more
customers—and from
every major industry!

The mere fact that we're the nation's best-known job stamping manufacturer... shows how we've progressed.

Now... as our life steps up at 40... would be a good time to let us do a bang-up job for you, too!



# COMPANY 408 Midland Ave., Detroit 5, Mich.

America's Best-Known

Job Stamping Manufacturer

For More Information Circle No. 320 on Inquiry Card—Page 17

PURCHASING

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GM STEEL TUBING BY ROCHESTER PRODUCTS, DIVISION OF GENERAL MOTORS, ROCHESTER, N.Y.

For More Information Circle No. 323 on Inquiry Card—Page 17

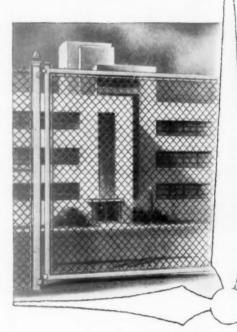
MAY, 1955

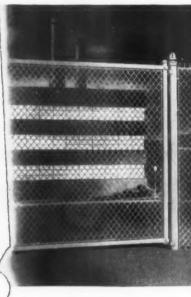
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# DAY & NIGHT





# Protection for your plant

Today's modern plants require 24-hour protection against trespassers, vandals and troublemakers. Anchor Fence not only gives you low-cost day and night protection, but at the same time helps control traffic in and out of your grounds, provides safe outdoor storage, and gives your plant and grounds that orderly, "well-kept" look.

#### Insist on Genuine Anchor Fence

Look for the famous orange-and-black nameplate that tells you you're getting genuine Anchor Fence with the deep rooted anchors that keep it in line, erect, year after year, in all kinds of weather and soil conditions. Needs no painting, thanks to zinc coating applied after weaving, not before. For more information about Anchor Fence, call your local Anchor office or write: Anchor Post Products, Inc., Industrial Fence Division, 6615 Eastern Avenue, Baltimore 24, Md.

# Anchor Fence

telation of ANCHOR POST PRODUCTS, Inc.

Plants in Baltimore, Md.; Houston, Texas; Los Angeles, Calif. Branches and warehouses in all principal cities

For More Information Circle No. 324 on Inquiry Card-Page 17

#### Freight System Both Transports and Warehouses

A system for transporting freight that takes advantage of and smoothly combines the most eco-nomical aspects of trucking and railroad transportation is announced by Clark Equipment Co., Battle Creek, Mich. The system, called the Mobilvan system, is based on the use of a lightweight van, 17' long by 8' wide and 8' high. The van is designed with automatic locking devices that enable it to be fastened securely to the bed of a railroad flatcar or the body of a flatbed highway truck. The 17-foot length permits the loading of three Mobilvans on a standard railroad flatcar, which is 53 feet 6 in. long. Two Mobilvans can be transported on a conventional 35 foot highway trailer and one on a city delivery flatbed truck.

Merchandise is loaded into the Mobilvan at the shipper's loading dock. During loading, the Mobilvan can either be on a flatbed truck trailer or, if the shipper has a forklift truck, it can be at ground or floor level. Its movements between a loading dock and flatcar or a trailer can also be accomplished by using a large straddle carrier. Once loaded, the Mobilvan is hauled to the railroad freight terminal, removed from the highway truck by a fork lift truck and placed aboard a railroad flat car. Or the Mobilvan could be carried to a trucking terminal to be put aboard an overland long haul highway trailer.

At the end of its rail journey, and sometimes at the end of a trailer journey, the Mobilvan is removed by fork lift truck or straddle carried and transferred to a flat bed highway truck for delivery to its final destination. An important advantage of the Mobilvan is that, following delivery to final destination, the container can become a convenient storage structure for contents that are not immediately wanted. By contrast, it is economically not feasible to immobilize a conventional highway trailer for storage purposes.

#### Handbook on Polishing and Grinding with Coated Abrasives

A 60-page "Production Digest" of authoritative papers on coated abrasive grinding and polishing techniques, has just been published Behr-Manning Corporation, Troy, N. Y. It is designed to "help industry solve modern grinding and

(Please turn to page 294)



OTHER FINE DISSTON METAL CUTTING TOOLS

plastics and wood. Tooth edge only is hardened, and specially heat-treated to insure long service without resharpening. For your safety and convenience 100' coils ½" to ½" wide are supplied on Disston safety reels. The special reel prevents stock from springing out. Unused stock can be rewound—no loose ends can cause accidents.

Call your Disston Distributor and let him show you other reasons why DISSTON HAS THE EDGE. He is equipped to give you expert advice and prompt service.

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# Even workers wearing glasses say they "never had it so COMFORTABLE!"

High flexibility
Pliable frame permits wearing
for hours in comfort.



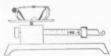
Easy-to-change lens
Replaceable lenses cut cost—no
need to replace entire goggle.
Lens held firmly in molded groove.



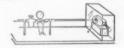
Wearing comfort
Channeled sides of frame give
comfortable clearance over spectacle temples.



Light in weight
Can be worn all day without fatigue—encourage continuous protection.



Impact resistance
Pass recognized tests for impact
protection as listed in Federal
Specification GGG-G-531a, Goggles and Spectacles, all plastic,
industrial.



Workers who wear prescription glasses—even big plastic frames—are mighty glad to get the extra roominess provided by NO. 90A MONOGOGGLES. Its greater clearance results in utmost comfort.

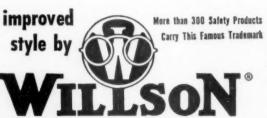
Exclusive Willson features described at left encourage workers to wear these sturdy MonoGoggles. Note how large flat .060 plastic lens provides "picture-window" scope of vision—how the deep, transparent light green frame admits side vision while eliminating glare.

Ask your Willson distributor to demonstrate its unique protection against light impact hazards like those found in spot welding, buffing, woodworking and chemical handling. You have a choice of ventilated or non-ventilated frames, clear or green plastic lenses. Bulletin mailed promptly on request.

Every exclusive feature in

NO. 90A MONOGOGGLES

adds up to Lightweight Comfort — Extra Convenience — Superior Impact Resistance!



Leaders in Research and Development of Safety Equipment Since 1870

221 WASHINGTON ST., READING, PA.
For More Information Circle No. 328 on Inquiry Card—Page 17

polishing problems and suggest new and practical methods". It constitutes the first known effort on the part of a coated abrasives manufacturer to compile a handbook of the art, and is assembled from 20 technical papers prepared by Behr-Manning methods engineers during the past two years for the leading periodicals of production engineering in both the metalworking and the wood-working fields.

The material is set 2-column on  $8\frac{1}{2}$ " x 11" format, and is illustrated with 122 photographs, 16 drawings and 4 tables or check lists. Copies are available without charge from Behr-Manning Corporation, Dept.

PD-54, Troy, N. Y.\*

#### G. E. Holds Value Analysis Seminars at Major Divisions

Value Analysis, the General Electric program which suggests methods for paring product costs without impairing performance, was recently taught to 78 representatives of various components of G-E's Major Appliance Division in the first seminar of its kind held at Appliance Park, Louisville, Ky.

In addition to G-E personnel, more than 100 outside vendors had displays or participated in the three-

week program.

Harold J. Coughlin, a G-E Value Analysis specialist from Schenectady, managed the seminar. Speakers included Vice-President Charles K. Rieger, general manager of the Major Appliance Division. Also participating were C. Willard Bryant of New York, G-E manager of materials services, and Lawrence D. Miles of Schenectady, manager of Value Analysis.

Product displays showing the various parts which go into modern kitchen equipment and other major appliances were set up by the various operating departments participating in the seminar.

Value Analysis is a G-E technique whereby products are studied with the objective of giving equivalent or superior performance at lower

cost.

In addition to the Louisville seminar, Value Analysis held seminars in March and April in Lynn, Mass., and in April in Syracuse. A company-wide seminar in May has been scheduled for Schenectady. Each seminar is similar in that the related subjects are presented by various speakers and participants are divided into workshop groups which analyze products and develop suggested ideas for cutting costs.



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# **Only Brainard has it!**

Brainard sales man Tom McMahon checks steel. strapping of maple wood flooring. Large number of pieces in heavy bundles require extra tension supplied with Brainard strapping tools.

STEEL STRAPPING



Photos courtesy Akron Floors, Inc., Akron, Ohio

#### STRAPPING TAPE

In the same plant, light bundles of aluminum face strip are banded with Brainard strapping tape. This aluminum strip is used for decorative trim. Brainard strapping tape assures tight bundling. No danger of marring the product.

• Here is Brainard salesman Tom Mc-Mahon helping one customer apply both steel strapping and strapping tape . . . each for the job they do best.

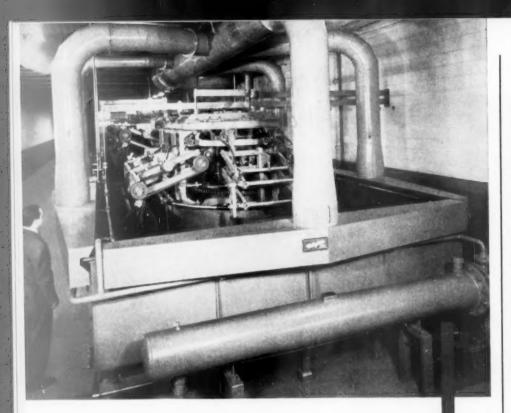
Only Brainard salesmen offer both steel strapping and strapping tape and can give you unbiased recommendations from a single source of supply. For a Brainard Strapping Analysis call your nearby Brainard saleman today, or write Brainard Steel Division, Dept. K-5, Griswold Street, Warren, Ohio.



COMPLETE STRAPPING SYSTEMS & MATERIALS •
WELDED STEEL TUBING • ELECTRO-GALVANIZED STEEL •
SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS

Offices in principal cities throughout the U.S.

For More Information Circle No. 329 on Inquiry Card-Page 17



#### NEW TOP EFFICIENCY IN BARREL PLATING

Udylite Automatic Barrel Proves Its Flexibility and High Capacity in Actual Production

The new Udylite full automatic horizontal barrel plating machine is a heavy duty, high production, return type unit, designed and built for any standard plating process.

Now in production plating, this new machine incorporates Udylite's years of experience as a foremost horizontal barrel producer plus Udylite's fully automatic engineering genius.

Special features include delayed set downs and skip transfers with complete operational control by the operator. Each cylinder can be raised or lowered independently of the rest. Electrical controls pre-determine desired number of cylinders per hour and time of cylinders in each bath. Speeds can be reduced in the post plate cycle. These and other features mean unheard of operational flexibility.

Get more facts about this new Udylite automatic barrel plating machine. Write for literature today or contact your local Udylite representative.

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION DETROIT 11, MICHIGAN

## New Handbook Outlines Uses of Alloy Steels

Available now for general distribution, a new 200-page handbook entitled "Alloy Steels Pay Off" is offered by the Climax Molybdenum Company to purchasing, engineering and management personnel who are interested in the practical utility of alloy steels in modern equip-

ment design.

Highlighted in this book are the economic advantages of fabricating with alloy steels for improved weight-to-strength ratios in aircraft construction, bridges, electrical equipment, machinery, trucks and buses, etc: longer life and less maintenance; heavier payloads and lower operating costs; improved safety and overall savings in freight and shipping costs. Advantages of high impact strength and shock-load resistance are discussed—as well as savings resulting from improved resistance to corrosion and wear.

In an industry-wide study, these economies resulting from alloy steel use are documented by more than sixty factual case-histories presented in "Alloy Steels Pay Off". Copies may be obtained by writing directly to the Climax Molybdenum Co., 500 Fifth Avenue, New York

36, N. Y.

#### New Machine Squeezes Teeth On Automotive Axle Shafts

Development of a new machine that squeezes teeth onto automotive axle shafts and similar parts 36 times faster than conventional cutting tool processes was described recently by Harry Pelphrey, chief research engineer for Michigan Tool Company of Detroit. Pelphrey spoke at the 23rd annual meeting of the American Society of Tool Engineers in Los Angeles.

The new cold working process, he explained, forms the teeth on shafts and similar parts by rolling the part under pressure between teeth-forming racks. Instead of the metal being removed in the form of chips, it is displaced or squeezed into shape according to Pelphrey.

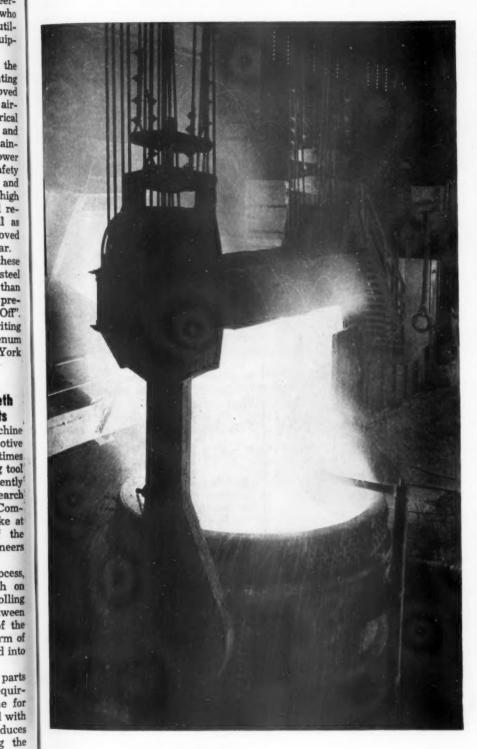
"Since tens of thousands of parts can be processed without requiring adjustment, the down time for tool changes is trivial compared with any other process. This also reduces the tool costs by eliminating the constant resharpening," he stated.

Special automatic loading and unloading devices enable the new machine to meet the trend toward automation of such operations in the metalworking industry, Pelphrey said.

M

For More Information Circle No. 330 ←on Inquiry Card—Page 17

# Our own nickel-rich alloy steel, made in our own plant, makes TIMKEN® bearings tougher



NICKEL makes steel tougher. So, our steel-making specialists don't skimp on nickel in the fine alloy steel we make for Timken® tapered roller bearings. They use exactly the right amount of nickel to give these bearings the toughness they need to withstand shock and last longer. Exacting quantities of chromium or molybdenum or both guarantee uniform hardness. By using the steel industry's first directreading spectrometer, we exercise hairline control of each element at the precise instant of tapping the furnace.

Rolling, annealing, and cooling are done with the same meticulous care. And every race and roller that goes into a Timken bearing is precision case-carburized to give it a hard, wear-resistant surface over a tough, shock-resistant core.

We've been specializing in the production of fine alloy steel for almost forty years. We're the only bearing manufacturer in the country that makes its own steel, because it's the only way we can make sure the quality of our bearing steel is just the way we want it. Steel is the heart of the bearing. That's why we insist on controlling bearing quality every step of the way-from melt shop to final bearing inspection. And that's why we don't skimp on the use of nickel.

To be absolutely sure of the highest performance standards in the equipment you build or buy, always specify Timken tapered roller bearings. They are made from seamless tubing or forgings by the most modern processes, under strict control. Only Timken bearings roll so true, have such quality thru-and-thru. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.

Only **TIMKEN** bearings roll so true, have such quality thru-and-thru



For More Information Circle No. 333 on Inquiry Card-Page 17

MAY, 1955

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# how IPC packings help Rockwood fight fire five ways

In Rockwood Sprinkler's all-purpose nozzle, fire-fighters have a basic weapon for fighting fire with five different types of water action. From high-velocity water fog to solid foam streams, the floating ball in the nozzle body can be positioned to the desired action.

A special dual-aperture packing, developed by IPC, seats and seals the ball *instantly*. Another unique problem . . . solved by IPC's thorough analysis of requirements, and their careful selection of packings material.

Pneumatic or hydraulic problems are best solved by IPC packings, either standard or special types, in leather or synthetic rubber. An IPC engineer will help you determine the best material . . . the most effective design. Write today!



This IPC packing, used in the Rockwood nozzle, is made of Buna N rubber (90 Durometer) and can operate under pressures up to 300 psi.



IPC serves industry with cup, flange, U and Vee packings, oil seals and custom packings.



INTERNATIONAL PACKINGS CORPORATION

A subsidiary of Graton & Knight Company
Bristol, New Hampshire

For More Information Circle No. 334 on Inquiry Card-Page 17

#### "Automated" Warehousing System Is Introduced

A new automated warehousing system that uses electronically controlled conveyors and reduces labor cost and warehouse space when compared with conventional warehousing methods was revealed recently in Colmar, Pa., by Walter Kidde Constructors, Inc., New York;



After the carriers leave the picking area, the conveyor takes them to the dispatching station. The dispatcher removes the punch card from each tray and either inserts the card in an electronic card reader, or punches the chute number printed on the card on a keyboard. The keyboard or card reader is used to activate conveyor controls which cause a picking tray to gently discharge its load into a pre-determined chute assigned to a specific customer.

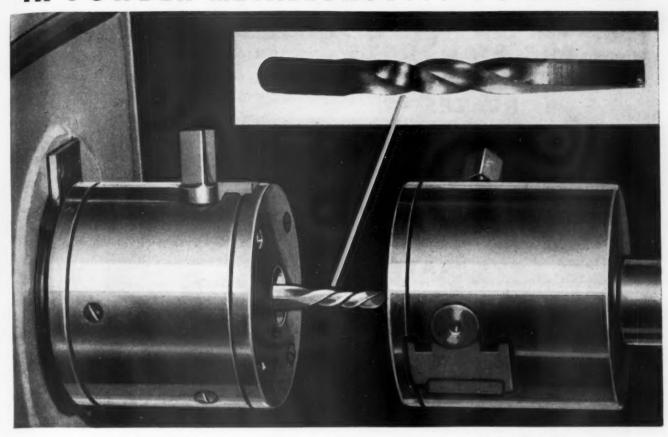
Link-Belt Co., Chicago; and Teleregister Corp., Stamford, Conn. Called the Kidde Warehousing System, it provides the advantages of "bulk picking" while retaining the desirable features of conventional "order picking," it is claimed. In addition to reduced need for personnel and space, bulk picking offers better and more accurate inventory control, more efficient use of warehouse storage space and reduction in breakage, returns, errors and similar warehousing "headaches."

The bulk picking method is facilitated through use of an "automated" conveyor system directed by electronic controls. The conveyor provides a platform on which pickers can place and segregate a requested item together with the consignee's address-which is contained on a tabulating card. It transports and then discharges each carrier load at a collecting station assigned to a specific destination for packaging, if necessary, and shipping. The discharge chutes are designed to act as temporary storage until the roving packing and shipping crew loads the

Soundness of both the basic design and application of the Kidde Warehousing System has been indicated by the successful operation

(Please turn to page 302)

#### IN POWDER METALLURGY ... IT'S AMPLEX



New STEEL OILITE'S unusual ductility is demonstrated in this photo of a typical torsion test. This revolutionary material was developed by Chrysler for applications requiring extreme ruggedness.

# **NEW Ductile STEEL OILITE** Opens Up New Uses for Powder Metals

STEEL OILITE is a new and revolutionary Chrysler developed die-pressed powder metal with ductility and strength in the range of low carbon steel (elongation values up to 15%; tensile strength from 35,000 to 120,000 PSI).

Makes considerable savings possible for countless new applications; one customer reported savings of 96%. Eliminates most machining operations.

STEEL OILITE may be hardened, machined and staked using conventional methods. Developed by Chrysler-Amplex engineers, STEEL OILITE has been production and field tested for over 18 months.

The engineering facilities of Amplex and Chrysler are unmatched in the powder metal industry. They are ready to help you. Call or write today for STEEL OILITE information. Ask for Bulletin STM-54.

#### CHRYSLER AMPLEX PRODUCTS

OILITE Bearings Permanent Metal Filters Finished Machine Parts

Friction Units

Write today for new STEEL OILITE Bulletin STM-54. It's yours for the asking.





- Only Chrysler makes OILITE

CHRYSLER CORPORATION . AMPLEX DIVISION

Dept. B-5

Detroit 31, Michigan

For More Information Circle No. 335 on Inquiry Card-Page 17

MAY, 1955

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# FOR STANDOUT IDENTIFICATION PLATES

# FOR LIFE-TIME INSTRUCTION PLATES



Your dependable source is

Chicago Thrift-Etching Corporation

Attractive name plates help sell—permanently readable instruction plates help assure correct use of your product. Our high quality metal plates provide the answers to your needs. We have the experience, the skill and the equipment to provide standout identification at the right price. We produce instruction plates that are clearly and easily readable—and stay that way for the life of the product.

Let Us Quote You on Your Requirements. Send a rough sketch, blueprint or sample, with specifications, for quotation—without obligation to you. Or write us fully about your requirements in name plates, instruction plates, dials, panels, scales, etc.

Write for free book, "Etched or Lithographed Metal Products of Quality," containing full color examples.

#### CHICAGO THRIFT-ETCHING CORPORATION

1555 NORTH SHEFFIELD AVE., CHICAGO 22, ILL., DEPT. C

Metal Name Plates, Dials and Panels, Etched or Lithographed • Etched Metal Scales, Clock Dials, Trophy Plates, Plaques, Advertising Specialties • Etched Metal Panels for elevator and architectural uses • Coin Banks • Lithographed or Screened Plastic Name Plates or Dials • Aluminum Anodizing by the Alumilite Process.

#### SUBSIDIARY OF DODGE MANUFACTURING CORPORATION, MISHAWAKA, IND.

For More Information Circle No. 336 on Inquiry Card-Page 17

(Continued from page 300)

of the prototype, according to William Collins, president, Walter Kidde Constructors, Inc.

"Warehouse operators have long recognized the advantages of bulk picking, on which our system is based, but no previously proposed system has been able to cope with certain inherent difficulties associated with that method," M. Collins said. "Our tests have convinced us that the Kidde Warehousing System represents a practical solution to the problem of successful application of bulk picking. The reaction of warehousemen who studied the system seems to bear out our judgment."



In the Kidde Warehousing System, once pickers place merchandise and their accompanying cards on the picking carriers, electronically controlled conveyors take over. In photo, a relay has just caused one of the trays to discharge its load, and the pusher plate on the following tray will push the merchandise into the gently sloping discharge chute.

"Certainly our warehousing system is not feasible for every warehouse operator," Mr. Collins said. "However, for any warehouse that must service a multitude of outlets with case-lot and less-than-case-lot quantities of a large variety of items, the system offers substantial savings over the conventional warehouse."

In one warehouse studied by Kiddie engineers, 6900 of a total line of 9100 items were called for in the orders filled on that particular day. Over 35,000 picks at the reserve stock areas, picking racks and bins were required to fill the orders. During the working day pickers traveled over one million feet to make the picks. At that same warehouse, using the Kidde automated system, the identical orders could have been processed in one batch with only 7,000 picks while traveling only 10,000 feet, the Kidde report concluded.

FOR FURTHER INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE INQUIRY CARD
ON PAGE 17



#### Masking Tapes, Packaging Tapes, Double Adhesive Tapes, Electrical Insulating Tapes

A wide variety of DUTCH BRAND Tapes are available in standard widths and thicknesses for industrial uses. A complete line of electrical tapes to meet the correct code requirements for any electrical insulating job. Masking Tapes in both crepe or flat back paper and cloth for reinforcing, holding, sealing, insulating or protecting. Double Adhesive Tapes excellent for splicing paper, felt, leather, etc. and Cloth Back Tapes widely used for reinforced packaging.

Ask your industrial distributor about DUTCH BRAND Tapes or if he does not handle the DUTCH BRAND Line write direct to Van Cleef, Division of Johns-Manville, Chicago for full information.

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Please send sampl	e of tape for follo	wing use:
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# for multiple-unit nut running operations

# APEX Surface Drive SOCKETS



Surface Drive Socket



Standard Hex Socket

The large openings at the six corners of the hex allow Apex surface drive sockets to slip quickly and easily on the head of the bolt or nut. This floating action makes these sockets ideal for use on multiple-unit nut running work, where perfect alignment of tool and nut or bolt is not always possible.

This particular broaching design also allows the socket to drive against the centers of the flats of the hex head fasteners, preventing wear and damage to nuts and bolts.

Surface drive sockets are just one of the many types of Apex nut running tools. If your nut running operations call for impact tools, Apex can furnish sockets, extensions, adapters and universal wrenches specifically designed for this type of work. Or, if you need sockets for high-speed production work, Apex can supply these, too.

In short, whatever your nut running problem, Apex either has the solution or will work with you to find it. Catalog 29 lists more than 5,000 solutions; write today, on your company letterhead please, for your copy.



sockets, extensions, adapters

THE APEX MACHINE & TOOL COMPANY 1034 S. Patterson Blvd. • Dayton 2, Ohio

For More Information Circle No. 340 on Inquiry Card-Page 17

#### Purchasing-Traffic-Warehouse Cooperation Reduces Costs for Lehn & Fink Products Corp.

Close cooperation between the purchasing department and the warehouse has reduced costs for Lehn & Fink Products Corporation, Stanley Burnham, director of purchases for the New York cosmetics manufacturer, reported to the American Management Association's spring manufacturing conference recently.

For example, he said, Lehn & Fink is saving about \$10,000 a year by buying a chemical in solution rather than in dry form. It was the traffic department that pointed out to the purchasing department the possibility of substituting tank car for drum delivery, thus eliminating drums, drum handling, and labor costs.

Formerly a large movement of bottles and jars by trailer trucks was palletized in the Lehn & Fink receiving department. By cooperation between the purchasing department and the trucker and suppliers, the traffic manager has worked out a method whereby the trailers are pallet loaded at the glass factories. This has cut the unloading time by some 15 labor hours per trailer, and the possibility of extending this method to other commodities is being studied.

Lehn & Fink has a "centralized" purchasing organization, Mr. Burnham explained. The New York purchasing office sets policy and makes national contracts for raw materials and packaging supplies used at the two plants. Each plant has a local purchasing agent responsible for local procurement, expediting, and coordination with manufacturing departments. The central purchasing department also is responsible for package development.

#### Traffic Helps Purchasing

Primary responsibility of the traffic manager is the maintenance of a smooth flow of shipments to customers. His second major concern is to help the purchasing department keep incoming transportation costs as low as possible. He also advises purchasing and production as to the most economical points for manufacture so that full advantage can be gained from the dual plant locations.

The procurement and production process begins with a sales forecast, Mr. Burnham said, an acute problem in the industry because of seasonal sales peaks. To smooth out

(Please turn to page 308)

MAY



#### TO BENEFIT USERS OF ALL SANDVIK PRODUCTS

The new Sandvik building provides modern, expanded facilities for the administrative, production and Eastern Warehouse operations of the main company and all divisions, including:

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Carbide Tipped Tools, Blanks and Inserts. Milling and Combination Cutters.

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Power springs for watches, instruments, office machines and other industrial uses.

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Cold rolled Carbon and Stainless Steel Belt Conveyors for Material Handling and Processing.

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High Quality Swedish Hardware, Tools and Specialties.

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For applications which require HIGH FATIGUE LIFE, FINE SURFACE FINISH, ACCURATE & UNIFORM GAUGE specify SANDVIK cold rolled specialty strip steels.

#### You can get Sandvik strip steels:

- · In special analyses for specific applications.
- Precision-rolled in thicknesses to fit your requirements.
- In straight carbon and alloy grades.
- \* Annealed, unannealed or hardened and tempered.
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- \* With square, round or dressed edges.
- Wide range of sizes in stock -or slit to your specifications

Ask your nearest Sandvik office for further information or technical assistance.

Sandvik Swedish Specialty Strip Steels are used for Textile Machine Parts such as sinkers, needles, etc. • Band Saws (metal, wood and butcher) . Camera Shutters • Clock and Watch Springs • Compressor Valves . Doctor Blades . Feeler Gauges . Knives such as cigarette knives, surgical, etc. • Razor Blades • Shock Absorbers • A Wide Variety of Springs • Trowels • Reeds: Vibrator, Textile, etc. • Piston Ring Segment and Expanders • and many other applications.

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For More Information Circle No. 341 on Inquiry Card-Page 17

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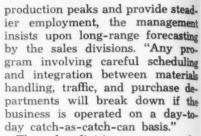
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The sales divisions prepare sales forecasts for a twelve months lead time and advance them by three months every three months. The production, planning, and purchasing departments estimate times required to meet sales' retail selling dates and set a deadline for the sales division to give a purchasing-production release.

After consultation among traffic sales, purchasing, and planning, the time required for processing and transportation in shipping the finished product is determined and the planning department decides how much merchandise should be produced at each factory. A schedule is agreed upon between planning and production so that materials will arrive in a steady flow with a minimum amount of re-handling On large production runs, Mr. Burnham said, it is possible to operate with as little as three days' inventory ahead of production units so that bottles and jars move directly from freight cars to produc-

tion lines



LEARNING THE ROPES of the American confectionery industry from a purchasing agent for Walter Baker Chocolate is 25-year-old Frenchman Gabriel Denant, (left), shown discussing Baker's Chocolate and Cocoapackages with buyer Earl Murch. Gabriel's stay in the United States was arranged through the Experiment for International Living, and he has been a regular employee of the Walter Baker Dorchester plant, working in various departments. When his fourmonth visit is completed, he'll return to France, where he works in his father's candy manufacturing firm near Paris.



for More Information Circle No. 342 on Inquiry Card-Page 17

# NO PLANT GROWTH

WHEN YOU USE

DOLGE

SS WEED-KILLER

For areas where you want ALL unsightly, fire-inviting weeds and grasses eliminated, such as railroad sidings, along fences and abutments, parking lots, drives and walks. An economical solution of SS Weed-Killer kills plants and seeds on contact, then works down through the soil, killing roots and sterilizing surrounding earth—affording freedom from weeds for as much as an entire year!

And...for keeping lawn areas, seeded traffic islands and other improved areas free from noxious weeds, use E.W.T. SELECTIVE WEED-KILLER. Non-injurious to most grasses.

Scientific chemical weed control literature on request.

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN



For More Information Circle No. 343 on Inquiry Card-Page 17

# VICKERS ... the MOST EXTENSIVE LINE of hydraulic units complying with JIC STANDARDS

Shown here are only a few representative standard Vickers units that comply with JIC Standards . . . standards that are directed toward ease of maintenance, safety, longer life and uninterrupted machine production. "Undivided Responsibility" is another important advantage gained by specifying Vickers Units throughout a hydraulic system.
For further information ask for new Bulletin 5002.



Two Stage Vane Pump (2000 psi)



Double and Two-Pressure Vane Pumps



Variable Delivery Piston Type Pump



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Piston Type

Hydrocushion Type Sequence Valve



Hydrocushion Type Counterbalance Valve





Flow Control Valve with Hydrostatic Compensator



Manually Operated Four-Way Valve



**Pilot Operated** Four-Way Valve

Solenoid Operated Four-Way Valve

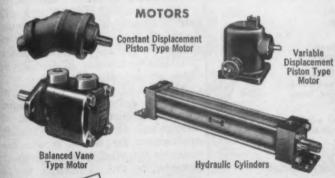








Deceleration Valve









#### WRITE for your copy

Vickers Circuitool consists of a handy, transparent plastic guide and a 24-page manual to speed the drawing and to promote symbol (JIC) uniformity of hydraulic

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OIL HYDRAULIC EQUIPMENT SINCE 1921 ENGINEERS AND BUILDERS OF

For More Information Circle No. 346 on Inquiry Card-Page 17



Carbon 1010 to 1025

Vacuum cleaner handle with cord Vacuum cleaner handle with corr holder weided to tubing an elongated hole punched for in terior wire and tumbler switch ready for chrome finish an assembly to the vecuum cleaner



The muffler inlet pipe above shows how Michigan workman-ship performs several Intrical fabricating operations to most exacting tolerances.



Fabrication by Michigan of this horn tube, which has a diameter variation of 51 per cent, is another example of the workability of Michigan tubing and of Michigan

#### For almost 40 years

Michigan has been manufacturing tubular parts for leading manufacturers. This acceptance of Michigan tubing has been won by meticulous attention to customer requirements and the supplying of the very best in tubing. The following advantages of low cost manufacture and utmost dependability are yours when you specify Michigan for tubular parts in the fabrication of your products.

- It is fabricated in round, square and • rectangular shapes, in a wide range
  - 2. It is always of uniform strength, weight, ductility and weldability;
    - It can be flanged, expanded, tap-3. ered, swaged, beaded, upset, flattened, forged, spun closed, fluted and rolled.
      - It can be formed or machined in your plant or prefabricated at Michigan.

#### Consult Michigan

for engineering and technical help in the selection of tubing best suited to your needs.



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Angeles, Calif.—Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver,
Colorado—W. A. McMichaels Co., Upper Darby, Pa.—A. J. Fitzgibbons Co., Buffalo, N. Y.— C. I. Crais Co., Birmingham, Ala.

#### **ASA Reports 1440 Standards** Now in Use in United States

There are now 1440 American Standards in use in the United States according to the annual report of the American Standards Association.

The number of American Standards approved in 1954, was 152, according to Vice Admiral George F. Hussey, Jr., USN (ret), managing director of the American Standards Association, who made the report. Of these, 64 were new standards, 88 were revisions. The greatest number of new standards was in the electrical field.

Admiral Hussey reported that there are 200 national committees composed of experts in engineering. safety, consumer, manufacturing and various other fields, now working on standards projects. The personnel on these committees are appointed by various technical societies, trade associations and other interested organized groups. American Standards are products of all these groups.

In addition, some standards, long in use by established technical societies, trade associations, and sometimes, companies, are also submitted to the American Standards Association for approval as Ameri-

can Standards.

#### **Aluminum Forging Alloy For** Wrought Aluminum Products

An important high strength aluminum forging alloy has been perfected by Aluminum Company of America, Pittsburgh, to meet the urgent needs of modern aircraft.

The new alloy, called X7079, will offer aircraft designers aluminum forgings with greater uniformity of properties in heavy sections and a considerable increase in ductility in cross grained directions.

At present, the production of X7079, a member of the aluminum, zinc, magnesium, copper series of alloys, will be limited to forging applications for which it was developed. Attention is being directed. however, toward its possible use in other wrought aluminum products, such as heavy plate and extruded sections, where its properties will be most valuable.

In addition, X7079 is less quench sensitive than high strength alloy 7075 (75S), thus providing more uniform properties in heavy sections. Limited tests also indicate that forgings of X7079 may be less (Please turn to page 316)

For More Information Circle No. 347 ←on Inquiry Card—Page 17

PURCHASING



The service life of this corrugated element depends on its ability to do push-ups.

Hydraulically formed from a welded stainless steel tube, it's a vital part in a Corruflex pipe expansion joint. In operation it absorbs the motion that results from pipe expansion and contraction. Often used in inaccessible locations, it's produced to rigid standards to eliminate shutdowns . . . loss of manhours . . . and maintenance costs.

In a recent durability test (see photo) the joint was subjected to 22,000 push-ups... 22,000 complete cycles of extension and compression—without failing. Flexing was stopped only be-

FRASSE

for everything in Steel Tubing cause requirements had been met. Trouble-free tubing for this grueling application is regularly furnished by Frasse — in stainless types 304, 316 and 347—in sizes from  $4\frac{1}{4}$ " O.D. up to  $54\frac{3}{4}$ " O.D. !

Frasse specializes in furnishing quality tubing for exacting applications—and stocks in conveniently located warehouses a complete range of sizes in carbon, alloy and stainless analyses for you to work with. And, equally important, Frasse engineers will gladly work with you in determining the right size and grade needed to do the job. When you need tubing or tubing guidance—always call Frasse.

If you use tubing ...

Send for this new folder describing all Frasse tubular products. Details include analyses, size ranges, mechanical and physical properties—also fabricating hints and ideas for end uses. Frasse tubing "specials" are included too! Mail the coupon for your copy—it's free!



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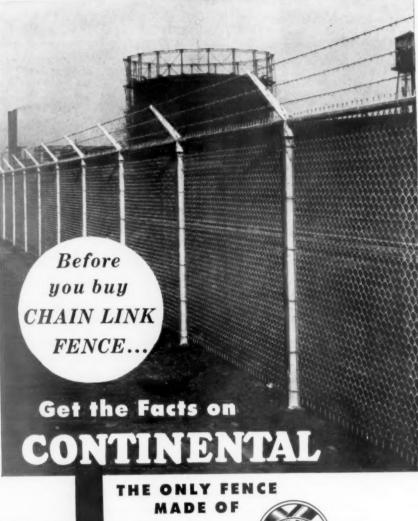
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Address

For More Information Circle No. 350 on Inquiry Card-Page 17

61AA



Increased Rust Resistance and greater tensile strength for longer Fence Life

Konik Steel is a special alloy containing Copper, Nickel and Chromium for increased rust resistance and greater tensile strength. That's why in Continental Chain Link Fence you get longer fence life, stronger protection, finer appearance—and low upkeep costs! In addition, Continental Fence is Bright-Galvanized after weaving for extra years of added protection. The H-Section line posts are 15% heavier. All posts are set in solid concrete for permanent alignment. These and other distinct features add up to positive extra value—and are reasons why so many large firms and institutions have specified Continental Fence. Get the facts about Continental now!

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# CONTINENTAL STEEL CORPORATION · KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and Special Wire. Also coated and uncoated Steel Sheets, Nails, and other products.

For More Information Circle No. 351 on Inquiry Card-Page 17

(Continued from page 312) susceptible to distortion when machined than are, for example, forgings of 7075 alloy.

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The advantages of X7079 are particularly apparent in die and hand forgings heat treated in sections over 3 inches thick. It develops higher and more uniform mechanical properties than 7075 in such thicknesses.

The improved characteristics of the new alloy have allowed Alcoa for the first time to establish guaranteed mechanical properties in die and hand forgings in section thicknesses up to 7 inches in the solution heat treated and artificially aged condition, X7079-T6.

The fatigue characteristics of both smooth and notched specimens of X7079 alloy are generally similar to those of 7075 alloy. The resistance to corrosion and cracking of X7079 alloy are as good as or better than those of 7075 alloy.

## Growing Competition Between New & Used Steel Containers

Industry is becoming increasingly conscious of the value of brand new steel shipping containers for best product protection and sales appeal according to Livingston B. Keplinger, president, Steel Shipping-Container Institute.

"Today," he said "virtually any liquid or dry product can be shipped in new steel containers, as the direct result of company- and industry-sponsored research into new and improved interior and exterior drum coatings. And only new containers," he pointed out, "can be guaranteed to meet fully the requirements of the Interstate Commerce Commission and the Bureau of Explosives."

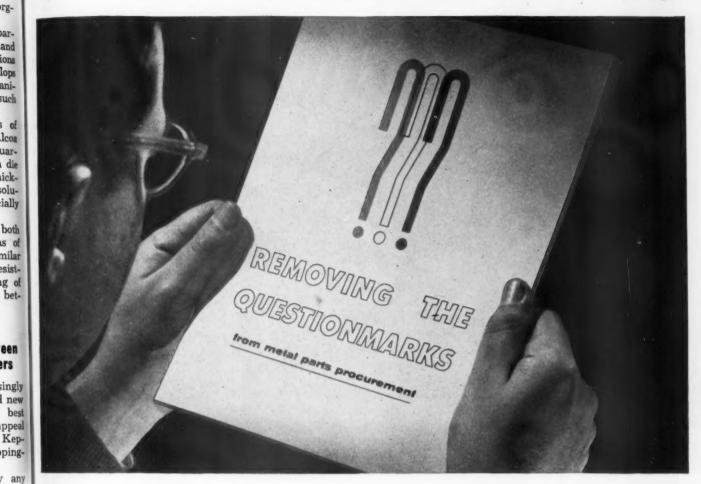
The steel shipping container industry faces competition from the operations of those who recondition drums for reuse. While a few companies collect and recondition their own drums, the bulk of the reconditioning business is in the hands of commercial reconditioners with small plants in or near most major cities or in the large communities throughout the country.

According to Mr. Keplinger, several methods and techniques are used in the attempt to remove rust, paint, dirt and contamination in preparing drums for refinishing and resale. When these methods are not entirely successful, contamination of product or leakage because of metal fatigue, loss of wall thickness, etc., can be expected.

(Please turn to page 318)

INEO PROTECTION

# specific ways to increase profits thru metal stampings



#### here's a clear cut report on what Crosby can do for you

Are you faced with rising costs and stiffer competition? How certain are you that your metal parts embody all possible improvements and economies?

"Removing the Questionmarks" will tell you how The Crosby Company is staffed and equipped to help you solve numerous problems in the procurement of metal parts. It shows how this progressive Company can assist both large and small plants in the design and production of cost-saving, product-improving, metal stampings.

It defines the many ways in which Crosby shows its initiative by making suggestions and recommendations when quoting. It explains how estimates are carefully prepared and how delivery dates are made to be kept.

It will enable you to measure the true value of Crosby services in meeting your parts requirements.

Make sure that this informative report reaches your desk without delay by using the coupon below.

REMOVE ALL DOUBT-GET A CROSBY ENGINEERED QUOTE

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For More Information Circle No. 352 on Inquiry Card-Page 17

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CARBIDE TOOLS
 SPECIAL TOOLS

For More Information Circle No. 353 on Inquiry Card-Page 17

(Continued from page 316)

New container manufacturers are required by the Interstate Commerce Commission and Bureau of Explosives to emboss on each drum their name, date of manufacture and the code for the exact Interstate Commerce Commission specification under which it was made.

To date, reconditioners are not required either to identify themselves or to indicate the number of times a container has been reconditioned. Hence, there is no way of knowing how many times a drum has been reconditioned or who reconditioned it, and thus, who is responsible for claims for damage

# "Custom-Made" Extruded Carbon Steel Sections

Production of "custom-made" extruded carbon steel sections by the Ugine-Sejournet Process has begun at Jones & Laughlin Steel Corporation's new hot extrusion plant in Pittsburgh.



floo

A few of the wide variety of shapes the can be extruded at J&L's new hot extrusion plant at Pittsburgh.

Initially the plant will produce extrusions in solid sections, ranging in weight from 1/3 pound to 1 pounds per lineal foot, and up to 1 feet in length.

Main production of the plant will consist of complex sections the cannot be rolled, with small ton nages of rollable special section for which rolling is uneconomical

Many parts now being made from castings, forgings, or machined to intricate cross section from solid bar stock, can be replaced at substantial savings by hot extrude cold drawn sections.

Close tolerances of the section allows the fabricator to use most of the extruded sections practical as they are. Generally, all the fabricator has to do is cut the section to required length. So the fabricator saves in machining time, in machine tools, in cutter cost and maintenance and in milling and profiling.

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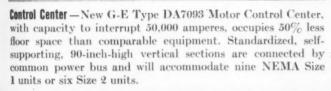
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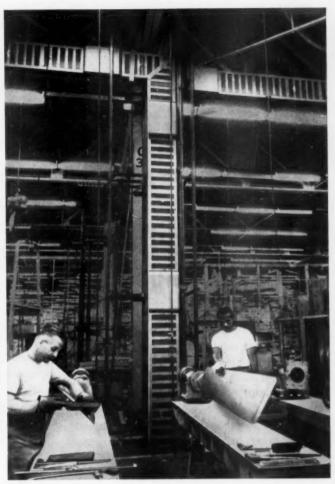
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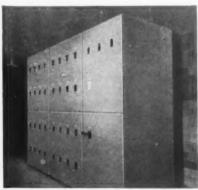
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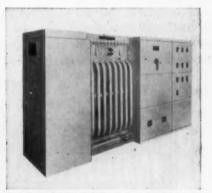
Busways — Flex-A-Power\* Busways, with either copper or aluminum busbars, are erected easily with "building block" sections of standard lengths. Housings exclude dirt and dust and protect personnel, yet permit outlets for most concentrated load groupings. Prefabricated fittings make assembly rapid and keep installation costs at a minimum.



Switchboards—Completely wired at factory. Large air or molded case circuit breakers, fusible switch units, meters, instruments, and accessories already installed on switchboards.



Panelhoards—Types NAB, NHB, NLAB, NLTQ, NLTQX, NTP, NTC for lighting—types NCB, CCB, Swing-WA\* and Converti-Fuse\* for power distribution. Full line. Factory assembled.



Sectional Distribution Centers — Factory assembled to reduce installation cost. Short secondary feeders in load-center system mean low voltage drop. Easy-toorder arrangement ends costly detailing. \*Registered Trade-mark of General Electric Company

- . .

#### Progress Is Our Most Important Product

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For More Information Circle No. 355 on Inquiry Card—Page 17

# RECENT **ADDITIONS**

# to the Steel-Grip Line of Safety Apparel

The four additions to the Steel-Grip line shown on this page have been developed to meet the latest safety needs of industry. Each material is the best we know of for its specific use. Two of them are "firsts" with Steel-Grip. We are able to present these lines simply because we are constantly looking for new and better ways to meet the safety buyer's needs. On the other hand, they explain why most safety buyers turn to Steel-Grip for completely adequate protection, dependable quality, long wear and low man-hour safety apparel costs. Quality manufacture is standard practice at Steel-Grip. And if you judge a safeguard not by its first price but by its man-hour cost, you will find that Steel-Grip is most economical of all. You are safe-when you buy safety apparel from Steel-Grip. All materials, leather, wool, Perma-Proof, flameproof duck, etc. Ask for sample swatches and for the catalog of our complete line. Write today.



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#### M.I.T. Offers Course on **Inventory Management**

A two-week Special Summer Program on the "Fundamentals of Inventory Management" will be offered by the School of Industrial Management of the Massachusetts Institute of Technology from June 20 through July 1, during the 1955 Summer Session.

The program," says Professor Ernest H. Huntress, director of the M.I.T. Summer Session, "is planned to consider important recent developments in the quantitative analysis of inventory management problems of use both to specialists in the field and to those in general management

"It will provide a systematic development of modern inventory control methods both for those specializing in inventory control and for those interested in inventory control from a broader point of continues Professor Huntress. "Primary emphasis will be on the application of quantitative methods in a vitally important management area."

Dr. Thomson M. Whitin, Assistant Professor in the M.I.T. School of Industrial Management, will direct the program, assisted by other members of the M.I.T. Faculty.

Professor Whitin explains that "the program will be concerned with the solutions of some typical inventory problems encountered by business executives, pointing out common fallacies in current management practice.

The analytical methods to be considered," Dr. Whitin points out, will vary from simple maximumminimum systems to applications of probability theory and linear programming. The necessary mathematical background for these will be provided. The program will also cover accounting concepts and methods pertinent to inventory valuation and the use of large-scale computers in inventory management. Throughout the program the cost data and information system requirements will be emphasized." Full details and application blanks for this Special Summer Program "Fundamentals of Inventory agement" may be obtained Management" may be obtained from the Summer Session Office, Room 7-103, Massachusetts Institute of Technology, Cambridge 39, Massachusetts.

> USE INQUIRY CARD PAGE 17

MA

# Wherever there's wood...

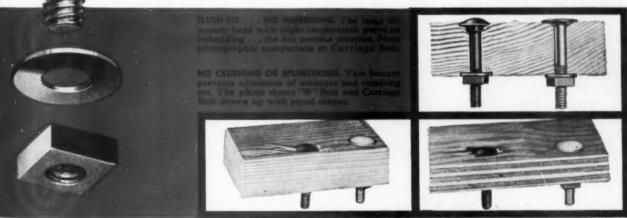


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HIGH-STRENGTH—Tests prove that the head and shank of the "W" Bolts are as strong as Carriage Bolts in every respect.



For More Information Circle No. 357 on Inquiry Card-Page 17

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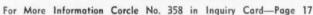
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BUY AMERICAN ... Tubular and Split Rivets ...

For More Information Circle No. 359 on Inquiry Card-Page 17

#### When Buyer's Check Bounces

(Continued from page 104) from asserting his title against one who has dealt with another through faith in his apparent ownership, it is the general rule that something more than mere possession or control is necessary. The authorities indicate that possession must be accompanied by evidence of title."

#### When Delivery Constitutes Title

Another exception to the rule that is generally adopted by the courts is set out in an early decision by the New York Court of Appeals. In that instance a check, given in payment for cotton, had been dishonored by the bank. Suit was brought by the seller for the recovery of possession of the cotton, that had been resold to an innocent purchaser.

In denying the right of the seller to retake this cotton from this innocent purchaser for value, the court said:

"Where goods are sold to be paid for in cash, or by notes on delivery, if delivery is made without demand of the notes or cash, the presumption is that the condition is waived and a complete title vests in the purchaser, but this presumption may be repudiated by proof of acts or declarations and circumstances showing an intention that the delivery shall not be considered complete until performance of the condition and the question of intention is one of fact. But after actual delivery, although as between the parties to the sale such delivery be conditional, a bona fide purchaser from the buyer obtains a perfect title. We must apply to the case the law of this state, which protects a bona fide purchaser from one to whom the goods have been conditionally delivered, against the claims of the original seller."

A few years ago the United States Court of Appeals said of this difference in the application of this principle of law and the presumption that by the acceptance of the check of the buyer the feature of a cash sale was waived:

"Waiver and estoppel have their foundation in the intention of the parties against whom they are sought to be enforced. Many of the cases indicate that the original sale was for cash but that by some act of the seller the condition has been waived. The result thus obtained depends upon an appraisal of the events in the light of the intention of the seller, found by examining his acts and the custom of the locality."



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EX-CELL-O High-frequency Spindle, rated at 40,000 rpm, grinds small holes in bushings.



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\*Authorized by amended U.F.C. Rule 41

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REINFORCED TAPE

Reducing Overhead Costs

(Continued from page 119)

verizer equipped with a set of 21 steel hammers. The continued requisitioning of such steel hammers in quantities of 500 and 1,000 at a time, costing \$2.38 each, indicated to Purchasing that the item should be investigated. We found that some hammers were broken and out of production after the pulverizing of 2,500 pounds of ore, and that complete replacement of the set was necessary after 5,000 pounds.

We found some improvements in making trial runs with various grades of hard-facing material, but not enough to warrant a change. We then had a set of hammers tipped with tungsten carbide, with the result that 80,000 pounds of ore were run without any downtime whatever.

The savings in going to carbide tipped hammers totalled \$2,689. We have been assured by the carbide manufacturer that even longer life can be expected by use of a better grade carbide, and we estimate that before we finish our work on this project we will be getting a production of 120,000 pounds of ore per set of hammers, or a saving of \$10,000 yearly.

#### Savings on Supplies

As a part of our Purchasing cost reduction program, we asked the representative of our supplier to discuss ways of increasing belt life. After an inspection visit to the operating department, the salesman came up with recommendations that saved us \$4,563 during the first year, and \$2,281 per year in subsequent years. This was the result of two very simple suggestions:

(1) By removing the belt and turning it end to end, the belt can again be used for an equal period of time, as the stretched sections are in the reverse direction and the pull in this new direction tends to straighten out the cross sections and return them to their normal positions

(2) Turn the belt over at regular intervals in order to give increased belt life.

Although equipment of this type has been in use in our plant for more than 25 years, no one in the operating department (including the foreman) had ever given thought to making these changes. It was another case of being too close to the woods to see the trees.

Among the practices we recently placed in effect in our storerooms

(Please turn to page 330)

# Service makes a <u>difference</u> when you ship by United Air Lines Air Freight



Mr. Charles F. Pennock, Philadelphia wholesale florist, inspects an air freight shipment arrival.

United Air Lines has always specialized in service designed to meet individual shipping needs.

Take, for example, flowers. A steady user of United Air Lines Air Freight service is the S. S. Pennock Co., nation's largest wholesale florists with main offices in Philadelphia. Mr. Charles F. Pennock, President, says: "United Air Lines is recognized throughout the industry as an air carrier of flowers and has gone out of its way to co-operate with florists to find the best means of handling flowers for air shipment."

In the same way United Air Lines can help solve your shipping problems with specialized service for fragile, perishable or unusual products and for scheduling of shipments. You'll notice a difference when you ship by United.

> Discover the advantages of United Air Lines Reserved Space Air Freight — write for "Industry's Flying Partner," Cargo Sales, Dept. C.5 United Air Lines, 5959 S. Cicero Avenue, Chicago





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For More Information Circle No. 364 on Inquiry Card-Page 17

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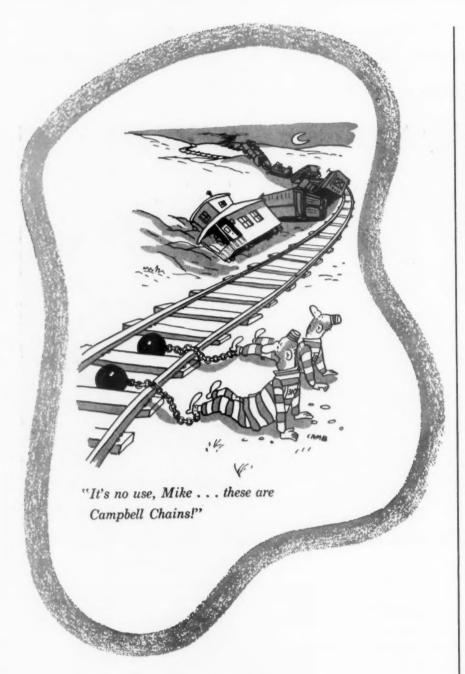
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There's no substitute for safe, long-wearing CAMPBELL CHAIN for hundreds of jobs of hauling, holding or hoisting. Campbell makes chain for every purpose, in any size, grade or specification. And CAMPBELL CHAIN is inspected link-by-link to guarantee long-lasting service. Your jobber can give you complete data on all standard sizes and grades. On unusual chain problems, write us direct.



Makers of Famous CAMPBELL Lug-Reinforced TIRE CHAINS

For More Information Circle No. 365 on Inquiry Card-Page 17

#### **Reducing Overhead Costs**

(Continued from page 328)

is that certain items will not be issued unless the corresponding used item is turned in. This applies to floor brushes, push brooms, paint brushes, files, shop towels, drills, and small tools. All such articles are carefully checked for possible further use. The drills and files are sent out to companies specializing in their reclamation. We are not large users of files but by having them recut when worn we saved \$521.75 last year. On many such items we adopted the slogan: "Repair instead of purchase."

For the year's operations, our savings through Purchasing will exceed a quarter million dollars.

#### Metal Progress

(Continued from page 118) the metals field.

#### 4. By-Products of Atomic Energy

The fourth development to be considered here takes us into a realm that might be called "wildeyed dreaming". It has to do with the peaceable uses of atomic en-

The horrible power of the atomic and hydrogen bombs is well known. There is hope that it will prevent World War III, until peaceable developments have a chance to eliminate the need for war.

Among these developments, we know that atomic power plants are being developed, but it may be years before they will be as eco-nomical as other power sources.

Meanwhile, atomic by-products are being used in medicine as tracers to help diagnose human ills and, in some cases, to help cure them. Tracers are also being put to work in agriculture to help develop better and more productive food plants, and in metallurgy to help develop better alloys and processes.

In industry, some of these byproducts are solving problems of long standing. Purchasers of galvanized sheets know that the producers have difficulty obtaining uniform coating. Now we have a gage that measures coating thicknesses by means of a certain type of atomic radiation, and permits more accurate control of this thickness. This is also being applied to tin plate and other metallic coatings, and is becoming

(Please turn to page 332)

#### IMPROVED SPHERICAL OLLER BEARING ...

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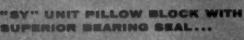
e for size, more capacity and longer life than any other spherical roller bearing. Introduced by BESF two years ago; now available in the popular series. Already adopted by hundreds of leading manufacturers.

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#### Metal Progress

(Continued from page 330)

an extremely valuable tool in the manufacture of paper.

We are now trying to adapt similar gages to continuously measure the thickness of steel strip as it is being rolled. The gage would automatically adjust the rolling mill to control the final thickness of the strip instantaneously and accurately. Many such schemes are under development to improve fabricating and materials handling in industry. This principle plays a vital role in the automation of factory processes and holds great promise of product improvement along with lower cost.

Even more startling is the recent announcement that certain types of atomic irradiation will cause a considerable change in the properties of various materials. Strength and hardness increase. Beneficial changes are produced in other properties that we have never before been able to change. This is particularly true of plastics and wood fibres, but it also works on many metals. Perhaps an entirely new set of materials will result.

Put together all of these possibilities, along with others as yet unknown, and there's no telling what can be done and how far we may go. Surely, the best is yet to

Recent changes in the federal law on atomic energy greatly encourage private development of these peaceable and beneficial uses. This may have an untold effect in raising our standard of living to even higher levels and in continuing the growth of our national econ-

#### World Economy May Improve

Such developments may also have a tremendous effect on the world economy. Our government plans to share our knowledge of peaceable uses of atomic energy with other countries. It is conceivable, from what we can already envision, that some day world-wide economic conditions can be so improved that we can do away forever with war and all its horrors.

So perhaps this "wild-eyed dream" isn't so wild, after all. Maybe these seemingly fantastic developments, properly and wisely used, have more than a commercial or scientific or economic significance. They may constitute the great hope of all people.

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Yes sir! With over 1200 sizes to choose from, in all types, and more than 100,000 to draw on — your special sprocket is probably stock at Cullman.

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For More Information Circle No. 367 on Inquiry Card-Page 17 PURCHASING

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in Surplus Industrial, Commercial and Construction Supplies and Equipment

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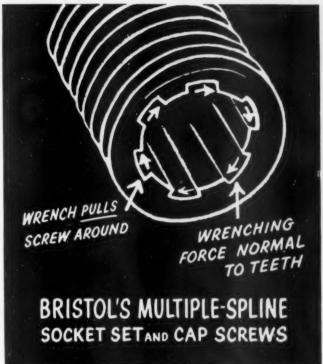
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For More Information Circle No. 384 on Inquiry Card-Page 17



For More Information Circle No. 385 on Inquiry Card—Page 17 MAY, 1955



SEE HOW GEAR-LIKE TEETH in Multiple-Spline Socket enable wrench to pull screw around. No expanding pressure - all wrenching force is translated into rotary motion. Result: faster assembly, tighter wrenching for greater holding power. Bristol's Multiple-Spline Socket Screws can be wrenched thousands of times and never break or round out at high torque.

# **BETTER TWIST in socket** screws — from elementary engineering principle

We're talking about the multiple-spline - you probably discussed it in your first year at engineering school.

It was this age-old principle, recognized as one of the best means of transmitting rotary power (used on automobile drive shafts, rear axles and airplane propeller hubs, for example), that Bristol's design engineers thought of when they set out to build a better socket screw.

Here's what they discovered: internally splining the socket of an ordinary socket screw produced a screw that would never split or round out, yet have more "wrenchability" and hold tighter than any other screw.

That's the story behind the Bristol Multiple-Spline Socket Screw - now used wherever shock and severe vibration exist . . . wherever a better socket screw is needed.

If you're not already familiar with these extra-strong fasteners, we'll be glad to mail samples to you. Tell us the size and type you want (Bristol's Multiple-Spline Socket Screws are made in sizes from No. 0 wire to 1/2 inch cap and set). A.4.12

# SOCKET SCREWS THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

For More Information Circle No. 386 on Inquiry Card-Page 17

341

#### RATING THE VENDOR

In my present position I have been requested to rate our vendors, and it has been suggested to me that you may have something in your files which might assist in setting up a simple method to do

> H. W. Fulton, Pur. Agt. Continental Can Co. Chicago, Ill.

See the following:

"Judging the Worth of a Supplier" by D. Markstein, February 1953 issue, page 111.

"Appraising the Vendor" by R. J. Flynn and A. J. Grotheer, Septem-

ber 1953 issue, page 77.
"Evaluating Your Suppliers" by
W. J. Arnos, October 1953 issue,
page 85.

"Quality Control Rates the Vendor" by W. H. Bentz and R. G. Fitzgibbon, December 1953 issue, page 86.

#### SAVINGS BY MODERNIZATION

Please refer to the article "Purchase Plant Equipment as an Investment", by Carter C. Higgins, in the February 1954 issue of Purchasing. On page 97 Mr. Higgins states: "If, for instance, a new machine shows savings of, say 25% of its major cost each year before taxes, we think we should investigate it." For clarification, what costs are included in "major cost"?

B. Riha, Pur. Agt. Igoe Brothers, Inc. Newark, N. J.

- In the context of this quotation, Mr. Higgins warns against using purchase price of a new machine as the sole basis for estimating savings. He points out that the original investment includes four major cost items:
  - 1. Cost of the new machine:
  - 2. Freight to get it to your plant;

3. Installation costs;

4. Repair parts or additional inventory required.

He further states that this investment should be reduced by the return realized from selling an old machine or reinvesting it for standby purposes.

These factors would constitute the "major cost" referred to.

Two other important factors are noted as affecting the earnings (or savings) from new equipment-depreciation, and taxes on the product output. In his company, an average depreciation figure is used, arbitrarily assuming 50% depreciation of all equipment over the life of the machine, i.e., one-half the original investment. The tax factor is accounted for in the rough rule-ofthumb estimate cited by calculating the possible saving before taxes.

It should be noted that these very general figures indicate only whether a new piece of equipment should be investigated for possible savings. In the investigation, the analysis is much more detailed and specific, including:

Annual depreciation per usehour; power costs; supply costs; estimated repairs; additional insur-ance, taxes, and interest on borrowed capital; labor cost savings; capacity; supervision; scrap and quality considerations; down time; minor hazards; handling costs, etc. \_Fd

#### COST REDUCTION

It is my understanding that you have compiled a bibliography of the various articles and booklets available on the subject of cost reduction and value analysis. would like to receive a copy if it is available.

W. E. Prescott, Asst. Dir. of Pur. The Kendall Company Walpole, Mass.

 We have no specific bibliography on this subject. Major published information on the subject includes the section on "Purchase Analysis' in the Ford Issue of PURCHASING, July 1948 (pp. 176-197), and the complete editorial contents of our annual "Purchase for Profit" issues

—June 1949; June 1950; June 1951; May 1952; May 1953; and May 1954. Next month's "Cost Reduction Issue" will present an unusually comprehensive summary of modern principles and practice in this field.

See also the booklet "Cutting Costs through Analyzing Values' issued by the National Association of Purchasing Agents.-Ed.

#### GROUP PURCHASING

Some three years ago, the Community Chest Board of Directors asked the St. Louis Purchasing Agents Association to help in a study of purchases made by its more than 100 agencies. The Association assigned a committee to review purchases and make recommendations. The committee studied the problems and suggested to the Chest that a consolidated purchasing function, properly administered, could save the Chest Agencies many thousands

of dollars each year.

Based on the Purchasing Agents' report, the Chest Board of Directors voted, in November 1953, to put a purchasing plan into effect. It is called Voluntary Group Purchasing - voluntary because there is no authority to compel the agencies to participate in the program.

Since that time, we have been organizing and putting the plan into operation along the lines recommended by the P. A. committee. We are indeed fortunate to still have the committee on call for con-sultation and guidance. In addition, the Chest has also had the very capable services of Mr. Charles Koven, retired executive of Famous-Barr Co., throughout the organizing period of Group Purchasing. These talents and services were contributed without cost-an example of a civic minded citizen doing more than his share to promote the efficiency of the gift dollar.

So far we have made recommendations to the agencies covering several categories of items, including stationery and office supplies and papers. Fine activity has been noted on the part of the agencies, and our suppliers are well pleased with the volume to date. Savings on the items mentioned range from 20% to 50%. Since more than 3 million is spent annually by the agencies for supplies, services, and equipment, even a 10% saving indicates that a very substantial amount of money would be retained by the agencies for use in other parts of their welfare programs.

Thanks also to PURCHASING Magazine for permission to use material from your publication in a Purchasing Brochure prepared for use by the agencies, that is extremely beneficial in aiding our pro-

> Joseph P. Stagg Purchasing Consultant
> Community Chest of St. Louis
> and St. Louis County
> St. Louis, Mo.

#### **ADDRESS**

See page 101 March issue of Pur-CHASING. What is the address of Bone Engineering Corporation?

Morey Evans International Harvester Co. Memphis, Tenn.

• 701 West Broadway, Glendale, Cal.—Ed.